

MODEL CURRICULUM FOR TWO-YEAR M. PLAN/ M.TECH. PROGRAMMES IN PLANNING

Report Submitted By
Expert Committee of ITPI on
NEP 2020 & Planning Education



INSTITUTE OF TOWN PLANNERS INDIA
4-A, INDRAPRASTHA ESTATE, NEW DELHI

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From President's Desk



India is on the cusp of transformation, especially in urban and rural areas. India has positioned itself globally in the economy and in various dimensions. The ‘Strategy for India @ 75’, suggested by NITI Aayog is ‘an attempt to bring innovation, technology, enterprise and efficient management’ for the collective effort of India’s billion plus population for its US \$4 trillion economy in 2075. This necessitates reimagining our educational capacity to be more innovative and efficient to equip our workforce to reach this target. Institute of Town Planners, India, New Delhi (ITPI), since its inception in 1951, has been aligning with the national goal and objectives, especially in the field of spatial planning, and for the overall development of the country.

Since the introduction of the National Educational Policy (NEP) by the Government of India, in 2020 and subsequent National Higher Education Qualification Framework (NHEQF) in 2023, ITPI is making its efforts to redefine and realign the planning courses at under-graduate and post-graduate levels on the lines of these policy of the Government of India (GoI). In 2012 and in 2022, AICTE, GoI brought in changes in Town Planning Education through its Town Planning Board. However, with the introduction of NEP 2020, NHEQF 2023, and NITI Aayog’s recommendations (Reforms in Urban Planning Capacity in India-2021), ITPI through its Council felt that these policies are essential for Indian Town Planning Programme being offered by the Central/State/ Deemed/ Private /Denovo Deemed to be Universities, and needs to be adapted by ITPI and its member institutions. ITPI constituted another Eight Member Expert Committee on July 20, 2024 to incorporate UGC, NEP, NHEQF, and NITI Aayog guidelines and suggestions in the existing M.Plan/M.Tech in Planning Programmes and to suggest new programmes in line with the NITI Aayog reports and other latest policies to equip India for 2075 to higher levels of development. The Committee deliberated on various programmes and submitted its report to ITPI, which was approved by its Council with few suggestions in its meeting held on September 26, 2024 at Vijayawada, Andhra Pradesh.

ITPI thank the committed Committee Members who had worked hard to bring out this report within a given time frame. We thank all other experts who supported through their suggestions and deliberations to make this report possible. We hope this report will be useful for all the Academic Institutions associated with ITPI and affiliated with UGC and AICTE, Government of India. We are confident that with these realigned and relaunched programmes, the planning student community will bring change to make a ‘New India 2047’ in the field of urban and rural areas of India.

A handwritten signature in blue ink, appearing to read 'N.K. Patel'.

(N.K. Patel)

From Chairman's Desk

From Chairman's Desk



National Educational Policy (2020) brought out new vistas in the field of higher education and states that 'higher education can contribute the sustainable livelihoods and economic development of the nation'. Considering that India is steered by majority of the youth population, which propel the urbanisation and the economy, it is essential that the rapid transformation of the economy and urbanisation is managed through

a proper planning process. Institute of Town Planners, India (ITPI), established as a leading institution in 1951 under the Companies Act, has been shaping the spatial planning in India not only in urban but also in rural areas. It has been instrumental in facilitating major spatial policies such as First Urbanisation Policy in India, Western Ghats and Eastern Ghats Planning Area, National Capital Regional Plan, Delhi Development Plan, and Spatial Plans in many of the Union Territories. Urban and rural development being the State Government's subject under the Constitution of India, the influence of ITPI in shaping the national and at the state level spatial policies, over a period of time is evident through the contribution of Town and Country Planners across India. ITPI has 23 regional chapters and 5 regional centres efficiently operated through its members, who are heading some of the Town and Country Planning, Urban Development Departments, Development Authorities, and Academic Institutions other private companies. More than 80 institutions across India impart planning education to improve the capacity of the youth and train them to handle the challenges of urban, rural and regional planning.

The language of planning in India, especially spatial planning, is unique and historic. No other country in the world is so rich in its planning culture and variation. India is pioneer in the field of multitude of languages intricately linked to cultural heritage and planning. From the Harappan and Gangetic civilization planning, to Cholas and Pandiyas, Deccan Kingdoms to Northern planned cities such as Jaipur, to modernized cities such as Gandhinagar, Chandigarh, Bhubaneswar, NOIDA and New Mumbai, the planners of India have made key contributions in shaping them. From this past, India is moving towards the third largest economy in the world, and it is expected that almost 50 percent of its population will be living in urban areas by the 100th Year of India's Independence i.e. by 2047. NITI Aayog (2022) has opined that 'Urbanisation is not only a consequence of faster growth but also an instrument for promoting development through the economies of agglomeration which characterize the cities'. It is not only the plans of urban and rural areas, which are being prepared by the Planners, but there are other stakeholders and implementers who influence the plan implementation process in the country. Hence, planning by itself is a multi-disciplinary subject. Considering this, ITPI, from the beginning, has proposed the planning programmes in various education institutions open to various disciplines, which is like MERU (2040) suggested by NEP (2020). In addition, ITPI has been conducting capacity building programmes for the planners at different levels through offline and online modes.

NEP 2020, NHEQF 2023, and NITI Aayog's recommendations (Reforms in Urban Planning Capacity in India-2021) are eye openers to new avenues to incorporate more multi-disciplinary subjects to planning, such as use of Artificial Intelligence (AI) and Machine Learning (ML), Climate Change, Public Policy, etc. Implementing their guidelines is a challenge for ITPI to come out with programmes offering diploma and degrees at different levels, which can be taken up by the Governments across India, and also by private sector for the recruitment of trained

professionals. It is assumed that a quick fix to urban and rural issues through these diplomas and degrees will not only suffice to address the ground realities, but will help various stakeholders to understand the planning profession as well.

ITPI set up a Six Member Committee on January 1, 2023 to propose a framework for B.Plan-M.Plan/B.Tech-M.Tech Five Year Integrated Programme (FYIP) in planning as per NEP 2020 guidelines. The Committee deliberated on different aspects of the NEP 2020 and submitted its proposed framework of FYIP to ITPI, which was approved in the Extra General Body Meeting of ITPI held on February 24, 2023 in Bhubaneswar.

Realising further developments in the spatial planning discipline, ITPI constituted another Eight Member Expert Committee on July 20, 2024 to incorporate UGC, NEP, NHEQF, and NITI Aayog guidelines and suggestions in the existing B.Plan/B.Tech and M.Plan/M.Tech in Spatial Planning Programmes. Need was also felt to propose New Innovative Programmes in line with the NITI Aayog reports and other latest policies to equip India for higher levels of development by 2075. The Committee deliberated on various aspects of the NEP 2020, NHEQF 2023, and NITI Aayog guidelines, and programmes being run across the globe and submitted its report to ITPI. The Committee refurbished the existing seven specialized 2-year post-graduate programmes and proposed three new innovative (2-year standalone) post-graduate programmes in spatial planning stream. The Committee presented its report before the Council of ITPI in its meeting held on September 26, 2024 at Vijayawada, Andhra Pradesh, where the efforts of the Committee were appreciated. The suggestions of the Council were incorporated and the framework for M.Plan/M.Tech (2-year standalone) programmes in spatial planning disciplines and detailed course curriculum for M.Plan/M.Tech. were submitted to the ITPI on October 27, 2024.

ITPI is part of the Commonwealth Association of Planners', and many of our member Institutions such as IIT-Kharagpur, SPAs are linked to International Universities and Institutions for their programmes. It is proposed to encourage all the ITPI recognized Planning Institutions of India to link with these international universities in the field of planning and allied courses, so that planning in India is enriched through their knowledge transfer at different levels.

The policy document also suggests mechanism to integrate planning at school level so that the future of spatial planning is shaped by the youth of the country.

The members of this Committee thank ITPI for entrusting the responsibility to this team to prepare the 'Policy Document' to steer the Planning Education in line with the NEP (2020) and UGC (2022) guidelines. This document is just a beginning to propose contemporary, innovative, and state-of-the-art multi-disciplinary PG programmes in the field of planning. We at ITPI thank the Ministry of Education, Government of India for steering new avenues in the field of education at all levels with a new thinking.



(Prof. Dr. N. Sridharan)

Preface

India's population has been increasing tremendously along with its economic growth and per-capita income. There is evidence across the world showing that increasing urbanization pushes the economic development. Urbanization rate has been increasing especially through in-situ development, where many of the big villages – census towns, are pushing the urbanization to higher levels along with metropolitan cities. It is estimated by several research reports such as UN, The World Economic Forum, Census of India, etc., that India's urbanization will reach more than 55 percent in 2050. The Indian Government has an agenda of achieving a GDP of four trillion US dollar by 75th year of Independence. This poses a challenge in various sectors for which we need to re-engineer the existing system through innovation, especially in the education sector.

In this direction, the Government of India came up with the National Education Policy (NEP) in 2020, which was later followed by the National Higher Qualification Education Framework (NHQEF) in 2023 to equip the Indian population to be ready for a VIKSIT Bharat by 2047. Thanks to the guidance of the NEP and NHQEF, which are adapted by various academic institutions at all levels since 2020. ITPI, as a part of its commitment to align with the National Priorities, set up a Six Member Committee on January 20, 2023 to propose a under-graduate Five Year Integrated Programme in line with the guidelines of NEP 2020. The Committee's report was presented and approved in the Extra General Body meeting held on February 24, 2023 at Bhubaneshwar. On July 20, 2024, ITPI reconstituted Eight Member Expert Committee to re-assess the existing under-graduate and post-graduate programmes and to innovate new programmes at post-graduate Level. The Committee supported by the President of ITPI, Secretary General and Coordinator (Admin-Legal) of ITPI had eight sittings and deliberated for more than 200 person hours during this period. The Committee consulted the subject experts during the meetings, and held consultations with them to finalize the outline scheme and detailed course curriculum for ten programmes, including existing and newly proposed.

This report adhered to the NEP and the NHEQF guidelines and possess the following salient features for the PG programmes.

- New subject areas at UG or PG levels such as Civil Engineering, Environmental Engineering, Computer Science, Structural Engineering, Urban Design, Bachelor's in Law (5-year programme only), Econometrics, Social Work, Statistics, Operation Research, Remote Sensing and Geographic Information System, Public Administration, Geoinformatics, Management, Governance, Public Policy may be opened for entry to the PG Programmes in Planning.
- New Master's Programmes i.e. Real Estate Management, Spatial Governance and Policy, and Spatial Data Information System are introduced with the existing seven programmes.
- A plethora of electives and options are opened-up enabling the students to select innovative set of courses across various programmes.
- As per the NEP/NHQEF, vocational training, value addition education and multi-disciplinary courses are made mandatory for all the programmes.
- The first semester, with its basic planning courses, has been made compulsory for all the ten programmes.
- In each of the Master's programme, studio hours have been incorporated which gives a practical knowledge through field work.

- Each programme has a part of legislation, governance, finance, etc. which are necessary in the plan preparation, funding, implementation, and evaluation.
- The domain expertise has been kept intact for each Master's Programme supported by allied disciplines.
- In the academic field, especially in the field of planning, the canvas and the landscape is everchanging and evolving. Hence, courses that are designed for each programme may be revisited and revised periodically in tune with the environment at that time. The courses for each programme are not an end but a beginning for a new India and therefore, should be explored further.

The Committee members would like to place on record their gratitude to the President, Secretary, Co-Ordinator (admin-legal), and all the external experts for the inputs, cooperation, and positive support in the whole process. We thank, the Research Associates - Sh. Damandeep Singh and Sh. Sameer Talwar for their sincere help and commitment for the cause. We thank the ITPI administration for taking care of the Committee members' hospitality, and boarding and lodging.



(Ashwani Luthra)
Member Secretary
NEP-ITPI Committee



(N. Sridharan)
Chairperson
NEP-ITPI Committee

**Members of the ITPI Committee for Proposing
ORIENTING PLANNING EDUCATION IN LINE WITH NEP 2020 GUIDELINES
(Constituted on January 20, 2023)**

Sr. No.	Name	
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2	Prof. Dr. Ashwani Luthra	Secretary
3	Prof. Dr. Sanjay Gupta	Member
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Special Invitees for Various Programmes

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MEETINGS DATES AND OUTCOMES

Meeting Number	Date of the Meeting	Hours Deliberated	Outcomes
1	January 27, 2023	2	Understanding the UGC Guidelines and Challenges for Developing a Framework for Five Year Integrated PG Programme in Planning
2	February 03, 2023	4	Deliberations on the Structure of Five-Year Integrated PG Programme in Planning
3	February 12, 2023	4	Preparing Draft Report on the Framework of Five-Year Integrated PG Programme in Planning
4	April 19, 2023	5	Finalizing the Draft Framework for Five Year Integrated PG Programme in Planning and Presenting it at Extra General Body Meeting on February 24, 2023 at the 71 st NTCP conference of ITPI for Comments and Suggestions
5	April 29, 2023	3	Incorporating the Suggestions of the ITPI Members and Planning Institutes in the Report on Framework for Five Year Integrated PG Programme in Planning from the Extra General Body Meeting at the 71 st NTCP conference of ITPI
6	June 17, 2023	4	Finalizing the Report on Five Year Integrated PG Programme in Planning and Submitting to ITPI.
Reconstituted Committee			
1	July 20, 2024	3	Scanning of Various Existing Programmes & New Programme Ideas
2	July, 27 2024	4	M.Plan/ M.Tech Five-Year Integrated Planning
3	August, 3 2024	4	M.Plan/ M.Tech Five-Year Integrated Planning and M.Plan/ M.Tech New Programmes
4	August 10, 2024	4	Framework for Existing and New Programmes - Deliberation
6	August 24, 2024	5	Framework for Existing and New Programmes – Deliberations and Finalization
7	September 6-7, 2024	5	Framework For Existing and Existing and New Programmes – Refining and Approval
8	September 14, 2024	2	Refining Existing and New Programmes Approval
9	October 5-6, 2024	5	Refining all Programmes as per ITPI Council suggestions
10	October 27, 2024	3	Submission of the Report
11	May 31, 2025	6	Deliberations and suggestions with various Planning Institutions across India
12	June 15, 2025	4	Deliberations on the AICTE Town Planning Board's suggestions on the courses.
13	June 22, 2025	3	Preparations for the inclusion of the suggestions of AICTE Town Planning Board in the FYIP and Two-Year PG Programmes
14	June 29, 2025	5	Inclusion and finalization of the suggestions of AICTE Town Planning Board in the FYIP and Two-Year PG Programmes

Section – I

BACKGROUND AND DETAILS OF PROPOSALS FOR PG PROGRAMMES ON PLANNING

1.1. PRELUDE

The human settlements are experiencing rapid transformations due to the changing socio-economic paradigms, advancements in digital technologies, pandemic conditions, and other challenges faced by them. Rapid urbanization, climate change, ecological imbalances, spatial irrationalities, socio-cultural complications, economic instabilities, environmental disturbances, housing deficiencies, transportation challenges, water supply and sanitary crisis, etc. ask for innovative, advanced, constructive, futuristic spatial planning paradigms to build productive, inclusive, resilient, and sustainable human settlements. Sustainable Development Goals (SDGs) address these concerns and have set the targets to achieve them by 2030. The key to achieve these goals and targets is to impart systematic education and advanced knowledge to produce trained manpower to handle the upcoming challenges. India being a signatory is committed to achieve the SDG-4, which seeks to ‘ensure inclusive and equitable quality education and promote lifelong learning opportunities for all’.

While addressing the dramatic scientific and technological advances, such as the rise of big data, machine learning, and artificial intelligence, the NEP, 2020 envisages the increasing need for skilled workforce having multi-disciplinary abilities. NEP advocates to move towards critical training and use multi-disciplinary, innovative ways of solving solutions.

The Policy intends to create vibrant multi-disciplinary environments in academics and research, high quality teaching and community engagements. It proposes to have

- Imaginative and flexible curricular structure – novel and engaging course options;
- Multiple entry and exit points through academic bank of credits (7 years);
- Innovative Research-based specialization;
- Academia-government-industry linkage;
- Pedagogical reforms - communication, discussion, debate, research, and opportunities for cross- disciplinary and interdisciplinary thinking;
- Value-based education; and
- Industrial Internships and Research Internships.

The Policy proposes that the pedagogy must evolve to make education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centered, discussion-based, flexible, and, of course, enjoyable. Education must build character, enable learners to be ethical, rational, compassionate, and caring, while at the same time prepare them for gainful, fulfilling employment’. The Policy proposes the revision and revamping of all aspects of the education structure through paradigm shift from behaviourism to cognitivism, constructivism and meta-cognitivism i.e. literacy, numeracy, critical thinking and problem solving; teacher centric to learner centric; individual learning to co-operative, collaborative and participatory learning; expository learning to discovery learning; and learning approach to non-linear approach. The pedagogy must evolve to make education more experiential, holistic, integrated, inquiry-driven, discovery-oriented, learner-centred, discussion- based, flexible, and enjoyable. Thus, the NEP, 2020 has envisioned to provide access, equity and quality of education; improving teaching-learning with technology; knowledge creation; innovation eco-system; capacity building and competencies; research out-comes; revamping curriculum, pedagogy, assessment, and student support; state-of-the-art infrastructure and learning materials.

1.2. EMERGING PLANNING PROFESSION NEEDS AND NEP 2020 INTERFACE

Rapid urbanization, climate change, livability challenges, infrastructural deficiencies, governance issues, etc. have been bringing the transformations in the planning profession in the 21st century. The NEP, 2020 has come up in an apt time to bring in the reforms by

revamping the planning education system in the country. Following are some of the key dimensions addressing the need and requirement to align the existing planning education system to the guidelines of NEP, 2020.

There are certain challenges faced by town and country education in India which need to be addressed. Some of the issues have already been flagged by the NITI Aayog in its Report on Reforms in Urban Planning Capacity. In addition, there are certain important impediments, which hamper the advancement of planning education. Some of them are discussed below:

- Multiple agencies dealing with planning education;
- Inadequate faculty and infrastructure in the planning institutes;
- Need to revise recruitment rules;
- Need to revise eligibility conditions for admission to PG Programme in planning;
- Separate Entrance Examination for UG Programme;
- Different nomenclatures of planning programme;
- Curricula revamping;
- Increasing institutional consultancy; and
- Promoting / encouraging research.

Even the Advisory Committee of NITI Aayog has given following recommendations:

- The history of human settlements in the Indian sub-continent must be taught to all young planners in a manner that can help them draw learnings about planning and management of ancient and medieval human settlements in India.
- The model curricula of PG degree programmes in urban planning has a limited focus on the planning of hilly and coastal regions as well as rural areas. Hilly areas require a distinct way of planning and management anchored on disaster resilience, sustainability, and livelihood creation. In addition to this, there is a dearth of planning professionals specialised in the planning of rural areas. Supply of qualified professionals in these streams needs to be created albeit in a limited way.
- The Central Universities and Technical Institutions in all the States/UTs of the Indian Himalayan Region may be encouraged to establish a 'Department of Planning and Public Policy' and also to offer PG programmes with specializations in 'Hill Area Planning', 'Environmental Planning', 'Regional Planning', and 'Rural Area Planning'. The sustainability and disaster management aspects would be an essential component of the same.
- NIRF does not enlist the 'Planning' domain discipline. Therefore, it is recommended for inclusion of planning as a discipline in NIRF. Planning may be used as an umbrella term, including all its specializations such as environment, housing, transportation, infrastructure, logistics, rural area, regional, etc.
- AICTE has an approved list of 25 nomenclatures for postgraduate degrees in planning. Therefore, it is recommended that AICTE may retain the names of specializations based on industry requirements. Nonetheless, the names of the degrees should be limited to only two nomenclatures: Bachelor of Planning/Bachelor of Technology in Planning and Master of Planning/ Master of Technology in Planning, with the specialization in brackets.
- For the growth and development of educational institutions, mentoring by peers is essential, therefore, it is recommended that the institutions in the domain of planning

education may identify prominent international and national institutes in various disciplines, and connect with them and sign MoUs for mentoring.

- For ensuring robust and quality teaching staff in planning education institutions a three-fold approach is recommended, as given below:
 - All the faculty in the urban planning domain needs to be motivated and incentivised by the respective institutions for taking part in the ‘quality improvement programs’. Relevant international institutes can be roped in for bringing learnings from different contexts.
 - Faculty shortage in the educational institutions for conducting degree and Ph.D. programmes in planning need to be resolved in a time bound manner. In this regard, the faculty recruitment rules, particularly of the centrally funded technical institutions need to be reviewed to identify hurdles, if any, and amending them as per the rules and procedures laid-down.
 - The faculty needs to be encouraged to write and publish technical papers. This needs to be linked with their promotion so that quality improvement can be incentivised.

1.3. SKILL SETS OF PLANNERS

As the implications of urban planning travels beyond urban to rural, tourism, industrial, transport and logistics, regional, environmental, etc., therefore, the skill sets of Urban and Regional Planners need to encompass various aspects of multiple disciplines such as architecture, economics, environmental science, geography, finance, data analytics, etc. Master Plan / Development Plan essentially involves land allocation for various uses. Therefore, planners have to arrive at solutions for competing land uses, economic versus environmental considerations, and many other paradoxical situations, which need to be moderated through evidence-based decisions or trade-offs and incorporated in a spatial strategy that is most beneficial to the city, its surroundings, and masses. Therefore, the complexity of the task of city planning is remarkably high; and needs specialist skills as well as awareness. A planner is specially trained to possess skills for solving complex multi-sectoral challenges, moderating the competing pressures on land, posed by market forces, environmental considerations, and social needs, and take a balanced view in a citizen-centric approach, and also to work across disciplinary boundaries (Page 16, NITI Aayog Report, 2021).

1.4 TECHNICAL AND ANALYTICAL ROLE OF THE PLANNER

Various roles of town and country planners include town planning official, technical expert, project manager, advisor, consultant, faculty, etc., (page 15, NITI Aayog Report, 2021). However, some of the key functions of the town and country planners include:

- Preparation of Regional Plans, Master Plans / Development Plans; Zonal Plans; Site Plans; Local Area Plans; Special Area Plans for Coastal Areas, Port Areas, Heritage Areas, Disaster prone Areas, Stampede Prone Areas, Environmental Sensitive Area etc.
- Conducting feasibility studies, undertaking surveys, research, analysis, and documentation, detailed project reports, financial modelling, implementation, regulation, monitoring and evaluation;
- Analysis, drafting, preparation, implementation, and monitoring of spatial plans;
- Conducting research and developing strategies, supporting policies, programmes and key projects of the government at various levels;

- Contributing to the field through research and innovations;
- Developing innovative approaches to solve complex urban and regional challenges pertaining to housing, basic services, and transportation;
- Formulating policies and spatial plans integrating aspects of gender, universal access, climate change, safety and sustainability, etc.;
- Executing techno-legal roles, including building permissions and plan enforcement functions;
- Developing strategies for regional development;
- Developing policy frameworks for climate resilient planning and development/ adaptation of risk information in planning/ energy planning and management ;
- Implementing development projects and closely monitoring the impacts for mid-course corrections, if any;
- Engaging actively with different stakeholders;
- Enabling the balance amongst all relevant interests and competing land uses so as to solve conflicting demands on space and development; and
- Engaging with citizens and ensuring effective public participation at various levels of planning processes and their responsibilities.

1.5. STRUCTURE OF THE COURSE CURRICULUM AS PER NEP 2020

The Policy proposes to develop vocational, professional, critical/ responsive thinking, and ethical skills to attain skills enhancement, ability enhancement, multi-disciplinarity, and value-based education. It suggests inclusion of the following courses in the course curriculum leading to PG degree. It proposes

- **Foundation Courses** to have the basic knowledge of the discipline under study.
- **Professional Courses** to have comprehensive knowledge and coherent understanding of the discipline under study.
- **Interdisciplinary Courses** to ensure the development of capabilities across a range of disciplines including sciences, social sciences, arts, humanities, languages, as well as vocational subjects.
- **Environment Education Courses** to include areas such as climate change, pollution, waste management, sanitation, conservation of biological diversity, management of biological resources and biodiversity, forest and wildlife conservation, and sustainable development and living.
- **Value Added Courses** to include the development of humanistic, ethical, Constitutional, and universal human values of truth, righteous conduct, peace, love, non-violence, scientific temper, citizenship values, and life skills.
- **Community Engagement and Service** to include lessons in service and participation in community service programs.
- **Global Citizenship Education and Education for Sustainable Development** to form an integral part of the curriculum to empower learners to become aware of and understand global and sustainable development issues and to become active promoters of more peaceful, tolerant, inclusive, secure, and sustainable societies.
- **Digital and Technological Skills** to equip the students in the cutting-edge areas such as Artificial Intelligence (AI), 3-D machining, big data analysis, and machine learning.

- **Studio Activities** to engage the students in creative or artistic activities or experiential work.
- **Field Practice/ Projects** to engage the students to participate in field-based learning/projects generally under the supervision of an expert.
- **Internship/ Research Internship** to provide the students with opportunities for internships with local industry, businesses, artists, crafts persons, etc., as well as research internships with faculty and researchers at their own or other HEIs/research institutions, so that students may actively engage with the practical side of their learning and, as a by-product, further improve their employability.
- **Research** to develop the ability to acquire the understanding of basic research ethics and skills in practicing/ doing ethics in the field/ in personal research work, regardless of the funding authority or field of study.

1.6. TITLE OF THE PROGRAMME

In continuation to the past trends of AICTE, it is proposed to keep the title of the Two-Year PG Programme as M.Plan/ M.Tech. (Urban and Regional Planning); M.Plan/M.Tech (Urban Planning); M.Plan/M.Tech (Regional Planning); M.Plan/M.Tech (Transport Planning); M.Plan/M.Tech (Infrastructure Planning), M.Plan/M.Tech (Environmental Planning), M.Plan/M.Tech (Housing), M.Plan/M.Tech (Real Estate Planning); M.Plan/M.Tech (Spatial Information System), M.Plan/M.Tech (Spatial Governance and Public Policy).

1.7. PROGRAMME OBJECTIVES, OUTCOMES AND COMPETENCIES

The general objective of the PG programmes in Planning is to produce highly skilled professionals in planning to undertake policy and/or project matters in the public and private sector organizations. The graduates will understand the significance of planning in development of human settlements. The programme aims to explain planning paradigms and their applications and will be able to apply basic planning methods and techniques to organize, analyse, interpret and present different aspects of planning. They will be able to handle urbanization, housing, transport, environment, infrastructure, real estate, governance, public policy and planning matters in the urban and regional settings in an integrated manner based upon the advanced digital skills acquired by them. Upon completion of the respective programmes, they shall be equipped with the following learning outcomes:

- Understand the significance of planning and development in the context of Indian Knowledge Systems;
- Explain major planning paradigms and their applications;
- Articulate processes and rationales for planned interventions;
- Apply planning methods and techniques to organize, analyse, interpret and present information;
- Critically and creatively develop planning inquiries or processes to foster solutions-oriented decision-making;
- Effectively collaborate as a planning team to work with a client and/or stakeholders to assess and address a relevant planning problem to create a plan or professional report;
- Effectively present oral and written work (as a plan, professional report, or research paper) in a comprehensible, persuasive and professional manner;
- Have sufficient understanding of the legal and institutional framework for planning in the country and effectively undertake planning related regulatory activities

guided by appropriate regulatory guidelines towards achieving balanced and sustainable development of Indian towns/cities, villages and regions;

- Appreciate the basic nature and characteristics of planning as a public service and the potential role to be played by the private sector in delivering planning and development services; and
- Develop vocational skills, professional ethics and critical/ responsive thinking in planning the human settlements and built environment.

1.8. DURATION OF THE PROGRAMME

A semester comprises 90 working days and an academic year is divided into two semesters. A summer term is for eight weeks. During summer vacation, internship/ research internship can be carried out. Regular courses may also be offered during the summer on a fast-track mode to enable students to do additional credits or to complete the backlogs in course work. The Higher Education Institutions can decide on the courses to be offered in the summer term depending on the availability of faculty and the number of students. The duration of the programme will be two years. However, the maximum permissible duration to successfully complete the two-year full-time master programme shall be three years.

1.9. PROPOSED CREDIT SYSTEM

The planning institutes may follow National Credit Framework (2022): The Report of the High-Level Inter-Ministerial Committee on National Credit Accumulation & Transfer Framework of UGC for framing their credit framework.

1.10. TRANSFER OF CREDITS

The planning institutes may frame their policies on transfer of credits based on National Credit Framework (2022): The Report of the High-Level Inter-Ministerial Committee on National Credit Accumulation & Transfer Framework of UGC.

1.11. MASTER'S LEVEL ACADEMIC CREDIT

At Master's level, usually many of the leading universities/ institutions keep the first semester inter-disciplinary covering many of the subjects of planning. Similarly, some of the universities/ institutions allow the optional subjects to be obtained from other departments within the institutions. In many cases these optional ones are restricted. It is suggested the planning institutions to open up these optional and new disciplines to external universities/ institutions within India. Considering this, the planning institutions/ universities may explore having a basket of subjects keeping a minimum number in one discipline (say 10 out of 20 subjects) and open up other subjects to other departments and other universities. Some of the courses can be on MOOC too as decided by the respective planning institute.

It is also suggested that planning institutions should allow the students to obtain credits for internships from abroad and also to explore thesis abroad. It is recommended that the planning institutions, should go for joint studio programmes among planning institutions within India and universities abroad, where each of the institution sign a MoU. This will increase the quality of planners in the long run.

1.12. REGULATORY COUNCIL FOR PLANNING EDUCATION

AICTE should propose ITPI as regulatory authority for Planning Education in India to draw curricula, setting standards and assigning functions of coordination between teaching, research and extension in planning discipline exclusively.

1.13. SUPPLEMENTARY SUGGESTIONS

Some of the institutional level suggestions for the success of the proposed structure of the planning programme, as per the NEP, 2020, are as under.

- The Planning Institutes shall promote global networking; strategic alliances; technology enabled learning; e-content and resource-based learning; research collaboration; demand driven programmes/ courses; active industry-academia interface; and technology incubation.
- Multi-disciplinary programmes shall be designed to impart basic, advanced, competent, and expert level education. Some of the proposed specialized PG Programmes in this context are as under:
 1. Landscape, Ecology and Resource Planning
 2. Heritage and Conservation of Special Areas
 3. Sustainable Habitat
 4. Logistics and Freight Management
 5. Sustainable Mobility Management
 6. Urbanism and Resilient Planning
 7. Hill Area Planning
- Capacity building training programmes shall be organized periodically for the industry and academia to refresh and orient the planning ideas, contemporary practices, and technological advancements.
- Deliberate and suggest the mechanism to share the Academic Bank of Credits among the institutes imparting Planning Education.
- Deliberate and suggest for allowing the lateral entry of the candidates from the other planning education institutes at different Entry/Exit points, as suggested by NEP 2020.
- Online and open distance learning (ODL) teaching systems shall be evolved and practiced for quality teaching-learning mechanism as a part of Full Time Programme.
- The Planning Institutes shall promote collaborative research, e-studios, and exchange.
- The Planning Institutes shall promote research-based specialization, especially in studio and internship to encourage Global Citizen Education (GCED).
- The Planning Institutes shall promote academia-government-industry linkage.
- The Planning Institutes shall inculcate pedagogical reforms - communication, discussion, debate, research, and opportunities for cross-disciplinary and interdisciplinary thinking.
- The Planning Institutes shall start Executive PG Programme in Planning for working professionals. It may be in part-time or online mode.
- The Planning Institutes shall start short term innovative/ skill development courses for the benefit of the society and the professionals.
- The Planning Institutes shall adopt criterion-based grading system as suggested by NEP, 2020 in which the student is assessed for his achievements based on the learning goals for each programme.
- The Planning Institutes shall establish incubation centre, technology development centre, quality libraries (possibly sharable digital libraries), and research centre shall be established in each Planning Institute as student support systems.
- Networking of the Planning Institutes is proposed for vivid purposes.

- All the Planning institutes of India shall conduct common entrance test for admission to their programmes.
- Work out a mechanism of transfer of credits and fee structure for different courses in the Planning Institutes.
- MOOC Courses on DIKSHA/SWAYAM shall be promoted by the Planning Institutes. Teachers shall be encouraged and incentivised to develop more SWAYAM courses to the interest of the students.
- More value-added courses shall be included in the programmes to make the students responsive, responsible, and disciplined.

In addition, it is suggested that the educational institutes shall introduce

- Executive Programmes (for senior officials, junior officials in government and private sector) with minimum three years' experience.
- 3 or 6 months Short Term Programmes on emerging areas in spatial planning & development such as urban mobility, climate change and resilience, disaster management, SDGs, data sciences etc.
- Faculty Development Programmes for Academic Institutions to enhance the capacities of the faculty in these institutions.

Section – II

PROGRAMME PRELIMINARIES AND STRUCTURE

2.1. GENERAL PROGRAMME STRUCTURE AND CREDITS

2.1.1. Nature of the Programme

All the PG Programmes are Two-Year Full-Time Programmes only. Part-Time and online programmes are not permitted.

“Planner” hereby means the candidate who successfully completes the Two-Year Full-Time programmes listed in section 1.4 of this document.

2.1.2. Titles of the Programme

The titles of the Two-Year PG Programme are proposed to be as M.Plan/ M.Tech. (Urban and Regional Planning); M.Plan/M.Tech (Urban Planning); M.Plan/M.Tech (Regional Planning); M.Plan/M.Tech (Transport Planning); M.Plan/M.Tech (Infrastructure Planning), M.Plan/M.Tech (Environmental Planning), M.Plan/M.Tech (Housing), M.Plan/M.Tech (Real Estate Planning); M.Plan/M.Tech (Spatial Information System), M.Plan/M.Tech (Spatial Governance and Public Policy)

2.1.3. Composition of Structure of Planning Programme

The structure of the Two-Year M.Plan/ M.Tech in Planning discipline will comprise of the following categories of courses:

1. Major Courses
2. Minor Courses
3. Inter-Disciplinary/ Multi-disciplinary Courses (decided by the respective educational institution as per its policy), which can be through MOOC/NTPEL course also.
4. Skill Enhancement Courses such as Internship/Studio/Thesis/Dissertation
5. Ability Enhancement Courses
6. Value Added Course Elective Courses (decided by the respective educational institution as per its policy)

2.1.4. Course Code Definitions

L	Lecture
T	Tutorial
S	Studio
C	Credits

2.1.5. Definition of Credit

1 Hour Lecture per week 1 Credit
1 Hour Tutorial per week 1 Credit
2 Hour Studio per week 1 Credit

2.1.6. Range of Credits

Two-Year M.Plan/M.Tech in any Specialization in Planning **80 Credits***

* Planning Education Institutes may introduce additional credits, grand total of which has to be maximum upto **90 credits**.

2.1.7. Duration of the Programme

The duration of the programme will be two years. However, the maximum permissible duration to successfully complete the two-year full-time master programme shall be three years.

2.2. ENTRY QUALIFICATIONS FOR TWO-TEAR M. PLAN /M.TECH (TWO-YEAR) PROGRAMMES

A candidate with 50% marks in Bachelor of Planning/ Architecture/ Civil Engineering/ Structural Engineering/ Construction Technology/ Construction Management/Environmental Science/Environmental Engineering/ Computer Science/Infrastructure Planning & Management from a recognized statutory institute or any other recognized by the Institute of Town Planners India, New Delhi.

OR

A candidate with 50% marks in Master of Geography/ Economics/ Sociology/ Social Work/ Population Studies/ Development Studies/ Geo Informatics/Mathematics/ Econometrics/ Statistics/ Operation Research/ Public Administration/ Management/ Governance/ Public Policy from a recognized statutory institute or any other recognized by the Institute of Town Planners India, New Delhi.

Note:

1. The relaxation in the marks for being eligible to the FYIP for the SC/ST/OBC categories will be as per the policy of the Central/ State government.
2. For any clarifications, contact the ITPI, Headquarter in writing and get written response for the same.

2.3. PROPOSED STRUCTURE OF TWO-YEAR M.PLAN/ M.TECH PROGRAMMES IN PLANNING

Semester	Discipline Specific Courses – Major	Minor	Skill Enhancement Courses (Studio/ Thesis)/ Internship	Common Value- Added Courses (Compulsory/ Additional)	Grand Total of Credits	Inter- Disciplinary/ Multi-Disciplinary/Elective Courses
I	2 Courses (6 Credits)	3 Courses (6 Credits)	2 Course (8 Credits)	1 Course (2 Credits)	20	1 Course (2 Credits)
II	2 Courses (6 Credits)	2 Courses (4 Credits)	2 Course (8 Credits)	1 Course (2 Credits)	20	1 Course (2 Credits)
III	2 Courses (6 Credits)	2 Courses (4 Credits)	Thesis Preliminaries (2 Credits) + 1-2 Course (6-8 Credits) + Internship (Audit)	-	20	1 Course (2 Credits)
IV	2 Courses (6 Credits)	1 Course (2 Credits)	Thesis (12 Credits)	-	20	1 Course (2 Credits)
Grand Total					80	

- The Model PG Programmes in Planning are proposed for 80 credits. However, the Planning Education Institutes may introduce additional credits, grand total to be maximum upto 90 credits, if they wish to.
- The Planning Education Institutes may select the Value-Added Courses from the basket proposed herewith.
- The Planning Education Institutes may select the departmental/ institutional electives from the basket proposed herewith.
- The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the respective studio exercises.

Section III

OUTLINE SCHEMES OF TWO-YEAR M.PLAN/ M.TECH PROGRAMMES IN PLANNING

3.1. PROPOSED M.PLAN/M.TECH PROGRAMMES IN PLANNING

1. M.Plan/M.Tech (Urban and Regional Planning)
2. M.Plan/M.Tech (Urban Planning)
3. M.Plan/M.Tech (Regional Planning)
4. M.Plan/M.Tech (Transport Planning)
5. M.Plan/M.Tech (Infrastructure Planning)
6. M.Plan/M.Tech (Environmental Planning)
7. M.Plan/M.Tech (Housing)
8. M.Plan/M.Tech (Real Estate Planning)
9. M.Plan/M.Tech (Spatial Information System)
10. M.Plan/M.Tech (Spatial Governance and Public Policy)

The first Seven M.Plan/M.Tech programmes are already in existence in many planning institutions, while the last three are newly being introduced as these are emerging in India and many policies in these areas are already introduced by Central Government and States. For example: - Real Estate Act and Policies, Digital Governance, State Urban Strategies and Policies have been introduced across States. It is felt that this knowledge is essential in the field of planning to be employed by Local Self-Government to Central level, Private sector and in multi-lateral agencies. All the Programmes are adhering to NEP/NHEQF guidelines of the UGC/AICTE.

3.1.a. Mandatory First Semester for All Two-Year PG Specialized Programmes

First Semester (Common)						
Course Code	Nature of Course	Title of the Course	Credits			Total Credits
			L	T	S	
As per Institutional Policy	Major (IS - 11)	Planning History and Theory	2	1	0	3
	Major (IS - 12)	Principles & Techniques of Planning	2	1	0	3
	Minor (IS - 11)	Transport Planning	1	1	0	2
	Minor (IS - 12)	Housing and Community Planning	1	1	0	2
	Minor (IS - 13)	Infrastructure Planning	1	1	0	2
	Skill Development (SD – 11)	Planning Studio – IA Local Area Planning	0	0	10	5
		Planning Studio – IB Applied Socio-Economic Tools for Planning	0	0	4	2
		Planning Studio – IC Spatial Technologies	0	0	2	1
Total Credits						20

Value Added Course (VAD – 11)	Environment Studies*	1	1	0	2
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* For the candidates who have not studied this course earlier.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.1. Two-Year M. Plan/ M. Tech (Urban and Regional Planning)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-21)	City and Metropolitan Planning	2	1	0	3
	Major (MRP-22)	Regional Planning	2	1	0	3
	Minor (MRP-21)	Real Estate Market and Land Management	1	1	0	2
	Minor (MRP-22)	Urban & Regional Infrastructure	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Village, Cluster and Block Planning	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-31)	Institutions and Governance	2	1	0	3
	Major (MRP-32)	District Planning and Rural Development	2	1	0	3
	Minor (MRP-31)	Transport Corridors and Regional Development	1	1	0	2
	Minor (MRP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B Regional Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-41)	Development Finance	2	1	0	3
	Major (MRP-42)	Legislation and Professional Practice	2	1	0	3
	Minor (MRP-41)	Project Planning and Management	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credit

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.2. Two-Year M. Plan/ M. Tech (Urban Planning)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MUP-21)	City and Metropolitan Planning	2	1	0	3
	Major (MUP-22)	Metropolitan Land Markets and Management	2	1	0	3
	Minor (MUP-21)	Metropolitan and Urban Development Policies	1	1	0	2
	Minor (MUP-22)	Transport and Land Use Planning	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Master Plan	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MUP-31)	Institutions and Governance	2	1	0	3
	Major (MUP-32)	Mega Programmes and Mega Projects	2	1	0	3
	Minor (MUP-31)	Project Planning and Management	1	1	0	2
	Minor (MUP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B Master Plan of a Metropolitan Region	0	0	16	8
Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester					Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MUP-41)	Planning Legislation and Professional Practice	2	1	0	3
	Major (MUP-42)	Community Planning and Capacity Building	2	1	0	3
	Minor (MUP-41)	Metropolitan Development Finance	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.3. Two-Year M. Plan/ M. Tech (Regional Planning)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-21)	City and Metropolitan Planning	2	1	0	3
	Major (MRP-22)	Regional Planning	2	1	0	3
	Minor (MRP-21)	Real Estate Market and Land Management	1	1	0	2
	Minor (MRP-22)	Urban & Regional Infrastructure	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 2A Quantitative Methods	0	0	4	2
		Planning Studio – 2B Village, Cluster and Block Planning	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-31)	Institutions and Governance	2	1	0	3
	Major (MRP-32)	District Planning and Rural Development	2	1	0	3
	Minor (MRP-31)	Transport Corridors and Regional Development	1	1	0	2
	Minor (MRP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 3A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 3B Regional Planning	0	0	16	8
Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester					Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-41)	Development Finance	2	1	0	3
	Major (MRP-42)	Legislation and Professional Practice	2	1	0	3
	Minor (MRP-41)	Project Planning and Management	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.4. Two-Year M. Plan/ M. Tech (Transport Planning)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MTP-21)	Urban Transport Planning	2	1	0	3
	Major (MTP-22)	Traffic Engineering and Design	2	1	0	3
	Minor (MTP-21)	Public Transport Planning	1	1	0	2
	Minor (MTP-22)	Transport Economics	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Applied Quantitative Techniques and Software Applications	0	0	4	2
		Planning Studio – 21B Mobility Plan for a City	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MTP-31)	Logistics and Freight Distribution	2	1	0	3
	Major (MTP-32)	Intelligent Transport System	2	1	0	3
	Minor (MTP-31)	Road Safety and Environment	1	1	0	2
	Minor (MTP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Multi-modal Interchange Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MTP-41)	Transport Policy, Legislation, and Institutional Framework	2	1	0	3
	Major (MTP-42)	Sustainable Mobility Planning and Management	2	1	0	3
	Minor (MTP-41)	Project Planning, Appraisal and Management	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

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3.1.5. Two-Year M. Plan/ M. Tech (Environmental Planning)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (EP-21)	Theory of Environmental Planning and Design	2	1	0	3
	Major (EP-22)	Environment Monitoring and Assessment	2	1	0	3
	Minor (EP-21)	Environment Economics and Auditing	1	1	0	2
	Minor (EP-22)	Pollution Management and Settlement Planning	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Environmental Planning	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (EP-31)	Environment Impact Assessment	2	1	0	3
	Major (EP-32)	Environment Protection and Management	2	1	0	3
	Minor (EP-31)	Project Planning and Management	1	1	0	2
	Minor (EP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B	0	0	16	8
	Environmental Management Plan					
Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester					Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (EP-41)	Environment and Planning Legislation	2	1	0	3
	Major (EP-42)	Resilient Cities	2	1	0	3
	Minor (EP-41)	Climate Change and Mitigation	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.6. Two-Year M. Plan/ M. Tech (Housing)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (HOU-21)	Urban and Rural Housing Policies and Programmes	2	1	0	3
	Major (HOU-22)	Housing Standards, Design and Projects	2	1	0	3
	Minor (HOU-21)	Sustainable Materials and Technology	1	1	0	2
	Minor (HOU-22)	Housing Finance	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Housing Survey Techniques	0	0	4	2
		Planning Studio – 21B Housing Options and Strategy	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (HOU-31)	Real Estate and Housing Markets	2	1	0	3
	Major (HOU-32)	Informal Housing, Slums and Poverty	2	1	0	3
	Minor (HOU-31)	Urbanization and Land Management	1	1	0	2
	Minor (HOU-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Housing Scenario of a Mega City	0	2	0	2
		Planning Studio – 31C Project Formulation and Design	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (HOU-41)	Governance and Management for Housing	2	1	0	3
	Major (HOU-42)	Legislation and Professional Practice	2	1	0	3
	Minor (HOU-41)	Housing for Special Areas	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.7. Two-Year M. Plan/ M. Tech (Infrastructure Planning)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MIP-21)	Infrastructure Financing	2	1	0	3
	Major (MIP-22)	Infrastructure Economics	2	1	0	3
	Minor (MIP-21)	Infrastructure and Environment	1	1	0	2
	Minor (MIP-22)	Climate Resilient Infrastructure	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Master Plan	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MIP-31)	Infrastructure for Regional Development	2	1	0	3
	Major (MIP-32)	Infrastructure Governance	2	1	0	3
	Minor (MIP-31)	Project Formulation, Appraisal and Management	1	1	0	2
	Minor (MIP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B	0	0	8	4
		Infrastructure Development Plan				
	Skill Development SD – 32	Planning Studio – 31C	0	0	8	4
Feasibility Study of Infrastructure Projects						
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MIP-41)	Infrastructure Policies	2	1	0	3
	Major (MIP-42)	Infrastructure Legislation and Professional Practice	2	1	0	3
	Minor (MIP-41)	Mega Projects	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.8. Two-Year M. Plan/ M. Tech (Real Estate Development)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (ReED-21)	Real Estate Economics and Economic Development	2	1	0	3
	Major (ReED-22)	Real Estate Project Financial Appraisal	2	1	0	3
	Minor (ReED-21)	Land Management	1	1	0	2
	Minor (ReED-22)	Special Development Area	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Applied Real Estate Knowledge at Property Level	0	0	4	2
		Planning Studio – 21B Applied Real Estate Knowledge at Property Level	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (ReED-31)	Real Estate Property Development, Market Research and Product Management	2	1	0	3
	Major (ReED-32)	Real Estate Legislation	2	1	0	3
	Minor (ReED-31)	Real Estate Finance and Valuation	1	1	0	2
	Minor (ReED-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Real Estate Project Formulation and Design	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (ReED-41)	Facility Management	2	1	0	3
	Major (ReED-42)	Real Estate Models of Renewal and Revitalisation	2	1	0	3
	Minor (ReED-41)	Inclusive Real Estate Development, Affordable Housing and Community Development	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.9. Two-Year M. Plan/ M. Tech (Spatial Information System)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SIS-21)	Geospatial Data Mining and Spatial Computing	2	1	0	3
	Major (SIS-22)	Spatial Data Analytics and Data Science	2	1	0	3
	Minor (SIS-21)	Citizen Science and Smart Spatial Technologies	1	1	0	2
	Minor (SIS-22)	Big data Analytics	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 2A Spatial Information Systems for Urban Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SIS-31)	Environmental Regions and Spatial Data Analytics	2	1	0	3
	Major (SIS-32)	Crowd Sourced Data and Spatial Analytics	2	1	0	3
	Minor (SIS-31)	Unmanned Aerial Vehicle for Spatial Planning	1	1	0	2
	Minor (SIS-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 3A Thesis Preliminaries	0	2	0	2
		Planning Studio – 3B Spatial Information Systems for Regional Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SIS-41)	Geospatial Modelling and Simulation	2	1	0	3
	Major (SIS-42)	Spatial Information Governance Policy and Legislation	2	1	0	3
	Minor (SIS-41)	Natural Resource Management Systems	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

3.1.10. Two-Year M. Plan/ M. Tech (Spatial Governance and Public Policy)

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SGPP-21)	Fundamentals of Public Policy	2	1	0	3
	Major (SGPP-22)	Land Policy and Governance	2	1	0	3
	Minor (SGPP-21)	Indian Public Administration	1	1	0	2
	Minor (SGPP-22)	Urban and Regional – Theories and Policies	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Neighbourhood to Master Plan - Policy Making Process	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SGPP-31)	Mega Projects, Policy Formulation and Evaluation	2	1	0	3
	Major (SGPP-32)	Multi-Spatial Governance - Territory and Power	2	1	0	3
	Minor (SGPP-31)	Institutional Governance and Laws	1	1	0	2
	Minor (SGPP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Spatial Governance	0	0	4	2
		Planning Studio – 31C Capstone Project on Spatial Public Policy (Regional)	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SGPP-41)	Climate Policy Evaluation and Impacts	2	1	0	3
	Major (SGPP-42)	Economics and Finance of Public Policies	2	1	0	3
	Minor (SGPP-41)	Emerging Spatial Technologies and Governance	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

SECTION IV

**SEMESTER WISE DETAILED
SYLLABUS OF TWO-YEAR
POST-GRADUATE PROGRAMMES
IN PLANNING**

Model Curriculum for M.Plan/ M.Tech (First Semester (Common))

(4.1.a.: Mandatory First Semester for All Two-Year PG Specialized Programmes)

Program Objectives:

- Being a common semester to all the disciplines within Planning, first semester imparts the students the knowledge of basics in planning disciplines. It covers the techniques of planning, housing, transport, infrastructure, environment in addition to basic tools of GIS/AutoCAD and socio-economic tools.

Program Outcomes:

- A student will appreciate the various disciplines of planning in a nut shell and knowledge to prepare a plan from site planning to a development plan.

Outline Scheme

First Semester (Common)						
Course Code	Nature of Course	Title of the Course	Credits			Total Credits
			L	T	S	
As per Institutional Policy	Major (IS - 11)	Planning History and Theory	2	1	0	3
	Major (IS - 12)	Principles & Techniques of Planning	2	1	0	3
	Minor (IS - 11)	Transport Planning	1	1	0	2
	Minor (IS - 12)	Housing and Community Planning	1	1	0	2
	Minor (IS - 13)	Infrastructure Planning	1	1	0	2
	Value Added Course (VAD – 11)	Environment Studies	1	1	0	2
	Skill Development (SD – 11)	Planning Studio – IA Local Area Planning	0	0	10	5
		Planning Studio – IB Applied Socio-Economic Tools for Planning	0	0	4	2
		Planning Studio – IC Spatial Technologies	0	0	2	1
Total Credits						22

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercises.

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Course Code	As per Institutional Policy
Nature of Course	Major (IS - 11)
Course Title	PLANNING HISTORY AND THEORY
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand economic, political, cultural, social and other forces shaping built environments in history.
- to understand the significance of theories in planning of settlements.

Course Contents

Unit 1: Evolution of Planning

Significance of the study of evolution of settlements; Cosmological and other influences, origins and growth of cities, effects of cultural influence on physical form; Evolution of Planning thought from ancient texts and treatise in India (Vedic Literature), Classification of settlements and plans of ancient Indian villages and towns.

Planning Characteristics in Indus valley civilization: Case Studies- Harappa and Mohenjo-Daro, Dolavera, Egyptian, Mesopotamian Greek and Roman Civilizations, BC period Towns in India, Silk Route Cities: Vaishali, Bhaghalpur, Kushinagar, Sravasti, Kaushambi, Ram nagar, Barreilly, Sanghol, Kaveripattinam, J&K: Harwan, and Indraprastha in Delhi. Medieval Town Planning in India; Chola, Chera and Pandiya's and Town planning in ancient Deccan, Hyosalas, Vijaya nagara dynasties in town planning. Examples of Sri Rangam, Kancheepuram, and port town of Poompugar; Influence of Rajputs in Western India and their contribution to planning. Ancient river valley civilizations (Egyptian, Mesopotamian, Indus valley, Gangetic Region, Chinese and South American).

Unit 2: Dimensions of Planning

Urban Processes Criteria of location and development of towns in history, Political, economic, technological, social and cultural factors which have shaped settlements through history, Indian city typologies and study of urban growth, decline, renewal in different cities based on function, location etc.,

Renaissance; Industrial and postindustrial cities; Model and New Town Movements; Town Improvement and City Beautiful Movements, Colonial cities in India and provision of infrastructure.

Unit 3: Theories of Settlement Planning

Planning Theories by Ebenezer Howard, Camillo Sitte, Patrick Geddes and Clarence Perry, C.A. Doxiadus, Lewis Mumford, F.L. Wright, Le Corbusier and Peter Hall; City as a living spatial entity; Concepts of landmark, axis, orientation; City form as a living space; City as a political statement: New Delhi, Chandigarh. (Case studies: Chandigarh, Gandhinagar, Bhuvaneshwar, Industrial Towns, Amaravati, special Zones (SEZ) etc.).

Modernism and Post-Modernist Planning Thought; Neo-Marxist and Neo Liberal perspectives in Planning; Post positivist typology of planning theory, Comprehensive Rational Planning Approaches; Disjointed Incrementalism and Mixed Range Approach, Strategic Spatial Planning, Advocacy and Pluralism, Collaborative and Communicative Planning, New

economic geography and city region, Global cities, 15 minute city, Sustainable Cities, Healthy City, Resilience City, New Urbanism and Smart Growth Developments.

Unit 4: Planning in India

Post-independence Indian Planning and concept applications. Capital City (an amalgamation of cities) – Delhi; Chandigarh, Gandhi Nagar and Bhuvaneshwar, Steel Cities, New Cities: Raipur; New Mumbai, New Okhla Development Authority, Greater Okhla Development Authority, National Urbanisation Policy (1988) and urban direction. Corridor Urbanisation (DMIC, Eastern Corridor, Quadrilateral and their influence in urban form and direction. Concept of City within City, Expanded Cities, and Census Towns concept. Geography of Gateway city region (High Power Committee, MoHUA).

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate appreciation and knowledge about history and theory of ancient cities' planning and development.
- to analyze various city planning concepts, physical forms and abstract theoretical formulations.

References:

1. Hall P. (2014). Cities of Tomorrow: An Intellectual History of Urban Planning and Design since 1880. Wiley and Sons. Hoboken, New Jersey.
2. Levy J. (2006). Contemporary Urban Planning. Prentice Hall, New Jersey.
3. Ayyar V. (1915). Town Planning in Ancient Deccan. Law Printing Housing, Madras.
4. Hall P. (2002). Cities of Tomorrow: An Intellectual History of Urban Planning and Design in the 21st Century. Blackwell Publications, Oxford.
5. Ward S. (2002). Planning the Twentieth Century City: The Advanced Capitalist World. John Wiley & Sons. England.
6. Hall P. (1998). Cities in Civilization: Culture Technology and Urban Order. Weidenfield and Nicolson, London.
7. Stein M. J. (1995). Classic Readings in Urban Planning. McGraw-Hill, New York.
8. Nath R. (1995). Medieval Indian History and Architecture. APH Publishing Pvt. Ltd, New Delhi.
9. Lynch K. (1981). A Theory of Good City Form. Cambridge Publications, London.
10. Gallion A. (1963). The Urban Pattern: City Planning and Design. D.V. Nostrand Company Inc, New York.
11. Pojani Dorina (2023). Alternative Planning History and Theory. Routledge, London.
12. Beauregard Robert A. (2020). Advanced Introduction to Planning Theory. Edward Elgar Publishing, Cheltenham.
13. Dr. Singh Satvir (2019). Settlement Patterns and Planning in India. Akinik Publications, Delhi.

Recommended Journals

1. Jill G. (2023). Planning Theory and Practice. Taylor and Francis Online.
2. Whittemore Andrew H. and Brent D. Ryan (2024). Journal of Planning History. Volume 23, Issue 4. Sage Journals.
3. Pengjun Zhao (2017). Cities: The International Journal of Urban Policy and Planning. Elsevier
4. Professor Eddie Chi-Man Hui (2020). Habitat International. Elsevier
5. Black Shameem, Priya Chacko, Jason Cons and Ali Usman Qasmi (2020). Journal of South Asian Studies. Taylor and Francis Online.

Course Code	As per Institutional Policy
Nature of Course	Major (IS – 12)
Course Title	PRINCIPLES AND TECHNIQUES OF PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the various concepts in planning, categories of planning (economic, social and physical) and their integration at various level National, State and Local.
- to understand the tools and the process of making a spatial plan from site to regional level and how to implement and monitor a plan at various scales.

Course Contents

Unit 1: Fundamentals of Urban Planning

Planning definitions and concept, Categories of Planning (economic, social and physical) and their integration; Planning at different levels, Town as a physical, social, economic and functional entity, Town typology and their characteristics, Urbanization and Urban Growth, Identification of problems and priorities, Preparation of plans; Perspective Plan, Master Plan, Development Plan, Zonal Plans, Project Plans/Schemes, Concepts of land use, zoning regulations, Delineation of Local Planning Area . Example of GIS Based Master Plan, SVAMITVA and other programmes using urban and rural areas for spatial planning.

Unit 2: Fundamentals of Regional Planning

Concept of Regional Planning and development. Aims & Objectives of Regional planning, classification of regions, regionalization and delineation techniques for various types of regions, regional planning vis-vis National Five-Year Plans, Regional economic activities such as primary, secondary, tertiary – factors governing & influencing the size, structure of these activities, Role of public participation in plan formulation and implementation.

Scale of Delineation: Village, Block, District, Urban/city, Metro region, Meso and Macro regions and why do we need to delineate planning area. Dynamic regions and measuring the delineations. Use of existing administrative boundaries, Urban Agglomerations, existing and future dedicated urban planning areas, Built-up-area using remote sensing and drones, mobility surveys, Analysis of structure of nodes, hierarchy, nesting and rank size.

Unit 3: Sources of Information

Physical Surveys and Secondary Sources for Maps: Techniques of conducting surveys for land use, building use, density, structural condition of buildings, heights of buildings, land utilization and physical features of land; Data requirements for various types of regional plans; Techniques for conducting regional surveys. Use of NASA, Google, NRSA, and other sources for Remote Sensing and Drones, Survey of India, NIC classification of map codes, and Agricultural and Forest Ministry sources.

Data requirements for urban and regional planning; Sources of primary and secondary data; Quantitative and Qualitative methods of data collection, Validity and reliability of data, Questionnaire design, measurement scales and their applications, sampling techniques, types of socio-economic surveys; Self-surveys, interviews, mailed questionnaires and observer participation, focus groups etc. Use of Digital tools for Quantitative and Qualitative Surveys – Use of mobile network, sensors, drones, and other tools. Use of existing published data (Census

of India, NSSO, CSO, NFHS, and other Government and Non-Government sources of information). Analysis and Presentation of Data.

Unit 4: Data Analysis and Presentation Techniques

Land suitability analysis, Land use classification, coding and analysis; residential and non-residential density patterns and their analyses; population and economic analysis. Tabulation of data, graphical presentation of data; Preparing pie diagrams, histograms, bar charts, normal, semi-log and double log graphs and their uses; colour, black and white presentation techniques; Understanding the discipline of illustrations and tables; Colour, black and white presentation techniques; Basic discipline of presenting illustrations; Presentation of spatial data, analysis and proposals.

Planning Surveys, Primary-Sampling techniques, interview schedules and questionnaire design, Secondary data-format and attributes of data in terms of its relevance, reliability and compatibility, Census of India data, Data processing: Designing Performa for computers, classification, coding & tabulation, editing and control of error, Data presentation techniques, graphical presentation of data; Preparing pie diagrams, histograms, bar charts, normal, semi-log and double log graphs and their uses; Presentation and types of spatial data, analysis and proposals-Isolines, choropleths, Choro-schematic maps.

Scalogram, sociogram, etc. Threshold analysis; Input Output analysis, SWOT analysis. Methods of population forecasts and projections, Planning Standards Spatial standards, performance standards and benchmarks, and variable standards. URDPFI, RADFPI, SVAMITVA guidelines

Course Outcomes: Upon the completion of this course, the students will be able

- to acquire knowledge about the planning tools that were introduced in India from that of land acquisition to TPS, ToD, Accommodation Reservation, etc.
- to demonstrate appreciation of the types of data required (qualitative and quantitative) for planning and the various methods that are used for data collection.
- to use and interpret various spatial and non-spatial data by the application of statistical, GIS/Drones, etc., tools for data acquisition, analysis, mapping, and interpretation.

References:

1. Kulshrestha S.K. (2006). Dictionary of Urban and Regional Planning. Kalpaz Publications, New Delhi.
2. Greed Clara, (2004). Introducing Planning. Continuum, London.
3. Ministry of Urban Affairs & Employment (2014). Urban Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
4. Kopardekar S.H. & Diwan G.R. (1994). Urban and Regional Planning: Principles, Practice and Law. Kopardekar, Talegaon, Maharashtra.
5. Saini N.S. & Mahavir (1985). Urban Development Planning Strategies and Techniques. School of Planning and Architecture, New Delhi.
6. Goode W.J. & Hatt P.K. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
7. Keeble L (1972). Principles & Practice of Town and Country Planning. The Estates Gazette Ltd., London.
8. Roberts Margaret. (1991). An Introduction to Town Planning Techniques. 2nd Edition. Routledge, England.
9. Fainstein S. (2012). Readings in Planning Theory. 3rd Edition. Blackwell Publishing, Oxford.

10. United Nations. (2009). Planning Sustainable Cities. United Nations Human Settlement Program. Earthscan, London.
11. Cambbell Scott and Fainstein S. (2003). Readings in Planning Theory. Second Edition. Blackwell Publishing, Oxford.
12. Freestone. R. (2000). Urban Planning in a Changing World. E&FN SPON, London.
13. Ellin N. (1999). Postmodern Urbanism. Princeton, Architectural Press, New York.
14. Gupta S.P. (2024). Statistical Methods. Sultan Chand and Sons, New Delhi.
15. Kulshrestha S.K. (2022). Urban and Regional Planning in India: A Handbook for Professional Practice. Sage Publications, New Delhi.
16. Taherdoost Hamed (2022). Data Collection Methods and Tools for Research. Elvedit, Pully.

Course Code	As per Institutional Policy
Nature of Course	Minor (IS - 11)
Course Title	TRANSPORT PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand concepts and components of transportation planning and establish its significance in urban planning

Course Contents

Unit 1: Basics of Transportation Planning

Meaning, scope, objectives and components of transportation planning and its importance in urban planning; Importance of traffic and travel characteristics in transportation planning; Relationship between traffic volume, concentration, and speed; Urban and Regional Hierarchy of Roads and their Norms and Standards; Highway capacity and level of service; Transport problems and mobility issues.

Unit 2: Traffic Engineering

Cross Sectional and longitudinal elements of urban roads: right of way, carriageway, median, service lane, footpath, curb, camber, side slope, service road, horizontal curves, vertical curves, super elevation, sight distance, access control; Intersections and interchanges: types, capacity, and design principles; Traffic controls and regulation devices: traffic signs, signals, and markings; Road infrastructure and road landscape design features.

Unit 3: Transport Planning Process and Surveys

Transport plan and management: comprehensive traffic & transportation plan, city mobility plan, transport system management; Urban form and transport patterns; Land use – transport integration; Accessibility and mobility issues in transportation planning; Transportation planning process: stages and surveys/ studies; Traffic surveys, presentation and analysis- traffic volume, parking, origin & destination, speed & delay, accidents; Planning considerations, norms and designs of bus and truck terminals.

Unit 4: Transport Systems and Policies

Transport system and urban structure; Transport systems: meaning, types, characteristics of BRTS, LRTS, MRTS and NMTS; City size and sustainable transport options. Intelligent transport system: meaning, components, characteristics, and guidelines; Smart transport solutions; Legal and organizational framework for transportation; Funding of transportation systems; Transport technologies and environmental impacts: relevance in urban transportation planning; Urban transport policies in India; Transport, environment, and safety issues; Principles and approaches of traffic management, transport system management.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the concepts of mobility, transport modes, travel patterns, and transport networks.
- to understand key techniques for management and enhancement of transport.
- to identify traffic and transportation planning problems of a human settlement.

References:

1. Khisty C.J. and B.K. Lall (2016). Transportation Engineering: An Introduction. Prentice Hall of India Pvt. Ltd., New Delhi.
2. Pande Anurag and Brian Wolshon. (2016). Traffic Engineering Handbook. Seventh Edition. Institute of Transportation Engineers, New Delhi.
3. Sarkar P.K, Vinay Maitri and G.J. Joshi. (2015). Transportation Planning: Principles, Practices and Policies, Prentice. Hall of India Pvt. Ltd., New Delhi.
4. Slinn Mike, Paul Matthews and Peter Guest. (2015). Traffic Engineering Design: Principles and Practice, Elsevier, Butterworth-Heinemann. Burlington, MA.
5. Kadiyali L.R. (2014). Traffic Engineering and Transport Planning. Khanna Publishers, New Delhi.
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7. Hutton, Barry. (2013). Planning Sustainable Transport. Routledge, England.
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10. Boada B.L. (2021). Intelligent Transportation Systems (ITS). MDPI, Basel.
11. U.S. Department of Transportation and Federal Highway Administration (2023). Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD).

Recommended Journals

1. Wong S.C. and Keecho Choi (2024). International Journal of Sustainable Transport. Volume 18. Taylor and Francis Online.
2. Simon Blainey (2022). Journal of Transport Planning and Technology. Taylor and Francis Online.

Course Code	As per Institutional Policy
Nature of Course	Minor (IS - 12)
Course Title	HOUSING AND COMMUNITY PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the nature of housing problems, and various programmes and policies initiated to deal with these problems in Indian cities and villages.

Course Contents

Unit 1: Fundamentals of Housing

Housing definition and subject matter; Modernist and post-modernist Housing thought; Housing Ideologies: their assumptions related to poverty, housing issues, housing interventions, modernization, redistribution with growth, neo-liberal, pragmatic neo-liberal, Critique of ideologies and way forward; Housing need, demand and supply: definitions, factors affecting them, theoretical models and dynamics.

Unit 2: Land and Housing

Residential mobility: impacting factors and models (invasion and succession, filtering, housing chains, gentrification, life cycle and trade off model); Slums: causes and consequences and approaches; Housing area planning consideration and modules; Residential densities; Low cost housing: methodologies of cost reduction in housing, Low cost and eco-friendly building materials (indigenous, agricultural, industrial, others); Land for housing: formal and informal conduits of land supply, land partnership models for affordable housing provision (land pooling and readjustment, land reconstitution, land sharing).

Inclusive Housing: public policy and implementation, private housing for the differentially abled, single women, aged (senior citizen homes), working women and men hostels by public and private. Special Housing for migrant workers.

Unit 3: Housing Institutions

Role of Institutions in housing generation and upgrading: Housing and Urban Development Corporation, Building Materials Training and Promotion Council, Central Building Research Institute; Participatory models and their application in housing; Conducting social audits in housing; Housing and community development schemes; Formal housing finance outreach and the urban poor in India, Role of informal housing finance.

Unit 4: Housing Finance and Policies

Housing finance networks and institutions; Community micro-finance institutions: Self Employed Women Association Bank, Grameen Bank, Habitat International Coalition, International Slum Dwellers Federation; Urban Housing and Habitat Policy; International Agencies in Housing and Community Development; Best practices in Housing (slum upgrading, city wide networking, affordable housing provision). Cooperative Housing Societies in Indian Cities.

Course Outcomes: Upon the completion of this course, the students will be able

- to analyze the existing housing situation in a city.
- to show familiarity with national housing policies and other related housing provisions.

- to demonstrate an understanding of the relationships between housing markets, housing standards and incomes.
- to develop knowledge about housing needs for the poor in India.
- to develop knowledge about housing programmes and projects for the poor and their outcomes.

References:

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2. Aldrich B.C and R.S. Sandhu (1995). Housing for the Urban Poor. Sage Publications, New Delhi.
3. Ling J. and Ronald R. (2014). Housing East Asia. Macmillan, New York.
4. Banarjee A.V and E. Duflo. (2013). Poor Economics. Random House Limited, London.
5. Chattopadhyay S. (2009). New Essays on Inclusive Housing. Macmillan, Delhi.
6. Dwivedi R.M. (2007). Urban Development and Housing in India 1947 to 2007. New Century Publications, New Delhi.
7. Payne G. (1999). Making Common Ground. Intermediate Technology Publications Ltd, London.
8. Mathey K. (1992). Beyond Self-help Housing. Mansell Publishing Ltd., London.
9. Aromar R. (1990). Shelter in India: Sustainable Development Series. Har-Anand Publications, New Delhi.
10. Hardoy J. and D. Satterthwaite. (1989). Squatter Citizen. Earth Scan Publications, London.
11. Poulouse T. (1989). Reading Material on Housing. ITPI Publication, New Delhi.
12. Jain A.K. (2019). Housing for All. Khanna Book Publishing Co., New Delhi.
13. Kohli V.K. (2007). Housing Finance Agencies in India. Deep and Deep, New Delhi.
14. Jenkins P., H. Smith and Y.P. Wang (2007). Planning and Housing in the Rapidly Urbanizing World. Routledge, New York.
15. Rees Geneth and Chloe Roberts (2024). Housing: Architecture and Urban Planning. Knowledge Baker, Greater Noida.
16. Jill G. (2022). Planning the Good Community. Taylor and Francis Ltd, London.
17. Sengupta Urmi, Annapurna Shaw and Debolina Kundu (2024). Housing India: Programmes, Policies and Governance. Routledge, London.

Recommended Journals

1. Ruonavaara H. (1998). Housing Theory and Society. Taylor and Francis Online.
2. Çelik Özlem, Andrew Clarke, Rory Coulter and Damian Collins (2018). Journal of Housing Studies. Taylor and Francis Online.
3. Boelhouwer Peter J. and Queena Qian (2023). Journal of Housing and Built Environment. Springer

Course Code	As per Institutional Policy
Nature of Course	Minor (IS - 13)
Course Title	INFRASTRUCTURE PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to provide knowledge about the historical evolution and significance of various infrastructure systems, including water supply, sewerage, and transportation.
- to analyze and classify different types of infrastructure (physical, social, economic) and their current development status.

Course Contents

Unit 1: Typology and Significance of Infrastructure

Types of Infrastructure and existing development status: physical, social and economic infrastructure; Urban Infrastructure and Regional infrastructure: water supply, SWM, sewerage, urban transport, Regional infrastructure at micro, meso and macro levels: Transport and freight, communication, pipelines, ICT.

Unit 2: Infrastructure Planning Process

History of infrastructure: significance of infrastructure and its evolution, origins of different types of infrastructure as water supply, sewerage, transportation via road, rail, air, waterways; Role of national planning process in infrastructure development; Introduction to infrastructure planning: physical, social, economic and digital infrastructure and the norms associated with it at various scales.

Unit 3: Physical Infrastructure

Water supply sources (surface and underground), collection, conveyance, distribution, treatment (sedimentation, coagulation, filtration, disinfection); Water Quality & Demand: sanitation systems (conservancy, water carriage), disposal (septic tanks, privies), sewerage systems, collection patterns, treatment (screening, sedimentation, activated sludge, sludge treatment); Urban stormwater collection, drainage systems, rainwater harvesting, water reuse/recycling; Solid Waste Management: Generation to disposal (composting, incineration, sanitary landfills); Energy infrastructure and its distribution, Alternative energy sources and carbon reduction energy options.

Unit 4: Social and Economic Infrastructure

Infrastructure in context of urban and regional settlements: Educational including schools, colleges, technical education etc., Health facilities including dispensaries, health centre, general hospital etc., Socio-Cultural including police, religious places, etc. Recreational including parks, amusement parks, mela grounds, stadiums etc. their hierarchies, provision and location criteria, Norms and standards etc.

Public Distribution System, ports, rail and airport infrastructure, logistic hubs, storage facilities, banking system networks & financial hubs, and digital infrastructure planning; Huge power storage planning, carbon sink areas; Markets at various levels (organized and unorganized).

Course Outcomes: Upon the completion of this course, the students will be able

- to articulate the history and impact of infrastructure development.

- to classify and evaluate infrastructure systems and their status.
- to understand technical processes related to water supply and waste management.
- to apply infrastructure planning principles to urban and regional settings, considering norms and standards.

References:

1. Ilesanmi Felix Aromo. (2013). Regional Infrastructure Development Intervention LAP. Lambert Academic Publishing, Germany.
2. Bhattacharyay, Biswa Nath, Masahiro Kawai and Rajat M. Nag, (2012). Infrastructure for Asian Connectivity. Edward Elgar Publishing Limited, USA.
3. Birdie G.S. (2012). Water Supply and Sanitary Engineering. Dhanpat Rai Publications, New Delhi.
4. IDFC Foundation. (2023) India Infrastructure Reports: 1996 to 2023. Oxford University Press, New Delhi.
5. Jetty K.N. and Vishal Sethi (2007). Infrastructure Development in India. New Century Publications, New Delhi.
6. Ministry of Urban Development. (2011). Report on Indian Urban Infrastructure and Services. Government of India, New Delhi.
7. Ministry of Urban Affairs & Employment. (2014). Urban & Regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
8. Birdie G.S. (2012). Water Supply and Sanitary Engineering. Dhanpat Rai Publications, New Delhi.
9. Trifunovic N. (2006). An Introduction to Urban Water Distribution. Taylor & Francis, England.
10. Hussain S.K. (2006). Water Supply and Sanitary Engineering. Oxford Publications, New Delhi.
11. CPHEEO. (1997). Manual of Sewage and Sewage Treatment. Ministry of Housing & Urban Development. Government of India, New Delhi.
12. CPHEEO. (1997). Manual of Water Supply in Water Treatment. Ministry of Housing & Urban Development. Government of India, New Delhi.
13. Jadhav Pravin and Rahul Nath Chaudhary (2024). Infrastructure Planning and Management in India: Opportunities and Challenges. Rawat Publications, New Delhi.
14. Proag Virendra (2021). Infrastructure Planning and Management: An Integrated Approach. Springer Nature, Berlin.
15. Renner Theresa, Leonhard Plank and Michael Getzner (2024). Handbook of Social Infrastructure. Edward Elgar Publishing, Basel.

Course Code	As per Institutional Policy
Nature of Course	VAD - 11
Course Title	ENVIRONMENTAL STUDIES
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the scope and importance of environmental studies, different natural resources (forests, minerals, energy, water, land, food, biodiversity) and their utilization as well as conservation methods.
- to understand the importance of ecosystem structure and function; different types of environmental pollution (air, water, soil, thermal, nuclear and noise), environmental law and remedial methods.
- to introduce various acts.
- to make aware of the consequences of population explosion; diseases such as HIV/AIDS and various family welfare programs.

Course Contents

Unit 1: Basics of Environment

Definition, scope and importance, Need for public awareness

Natural resources and associated problems.

(a) Forest resources: Use and over-exploitation, deforestation, case studies. Timber extraction, mining, dams and their effects on forests and tribal people.

(b) Water resources: Use and over-utilization of surface and ground water, floods, drought, conflicts over water, dams-benefits and problems.

(c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources, case studies.

(d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity, case studies.

(e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources, case studies.

(f) Land resources: Land as a resource, land degradation, man induced landslides, soil erosion and desertification.

Role of an individual in conservation of natural resources; Equitable use of resources for sustainable lifestyles.

Unit 2: Ecosystem

Concept of an ecosystem; Structure and function of an ecosystem: Producers, consumers and decomposers; Energy flow in the ecosystem; Ecological succession; Food chains, food webs and ecological pyramids; Introduction, types, characteristic features, structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems (ponds, streams, lakes, rivers, ocean estuaries)

Introduction and Definition: genetic, species and ecosystem diversity; Bio-geographical classification of India; Value of biodiversity: consumptive use, productive use, social, ethical aesthetic and option values; Biodiversity at global, national and local levels; India as a mega-diversity nation; Hot-spots of biodiversity; Threats to biodiversity: habitat loss, poaching of wildlife, man wildlife conflicts, Endangered and endemic species of India; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity

Unit 3: Environment related Legislations

Definition, Causes, effects and control measures of Air pollution, Water pollution, Soil pollution, Marine pollution, Noise pollution, Thermal pollution, Nuclear pollution; Solid waste management: Causes, effects and control measures of urban and industrial wastes; Role of an individual in prevention of pollution; Pollution case studies; Disaster management: floods, earthquake, cyclone and landslides

From unsustainable to sustainable development; Urban problems related to energy, Water conservation, rain water harvesting, watershed management; Resettlement and rehabilitation of people: its problems and concerns; Case studies and environmental ethics: Issues and possible solutions; Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust; Case studies: Wasteland reclamation, Consumerism and waste products; Environmental Protection Act, 1986, Air (Prevention and Control of Pollution) Act, 1981; Water (Prevention and control of Pollution) Act, 1974; Wildlife Protection Act; Forest Conservation Act; Issues involved in enforcement of environmental legislation, Public awareness

Unit 4: Case Studies

Population growth, variation among nations Population explosion: Family Welfare Programmes; Environment and human health; Human Rights; Value Education, HIV / AIDS, Women and Child Welfare; Role of Information Technology in Environment and Human Health; Case Studies; Healthy Cities; Sustainable Development Goals; Climate Change and adaptation at micro to macro level measures.

Field Work

- Visit to a local area to document environmental assets river/forest/ grassland/ hill/ mountain
- Visit to a local polluted site – Urban / Rural / Industrial / Agricultural
- Study of common plants, insects, birds
- Study of simple ecosystems-pond, river, hill slopes, etc.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the effects of environmental pollution and remediation.
- to identify the causes, effects and remedial measures.
- to follow sustainable lifestyle patterns.
- to appreciate the environmental Acts and Rules.

References:

1. Bharucha E. (2005). Textbook of Environmental Studies. Universities Press, Hyderabad.
2. Joseph K. and R. Nagendran. (2004). Essentials of Environmental Studies. Pearson Education (Singapore) Pvt. Ltd., New Delhi.
3. Kaushik A. and C.P. Kaushik. (2004). Perspective in Environmental Studies. New Age International (P) Ltd, New Delhi.
4. Rajagopalan R. (2011). Environmental Studies from Crisis to Cure. Oxford University Press, New Delhi.

5. Sharma J. P., N.K. Sharma and N.S. Yadav. (2005). Comprehensive Environmental Studies. Laxmi Publications, New Delhi.
6. Sharma P. D. (2009). Ecology and Environment. Rastogi Publications, Meerut.
7. Subramanian V. (2002). A Text Book in Environmental Sciences. Narosa Publishing House, New Delhi.
8. CSE (2024) State of India's Environment. Centre for Sciences and Environment, New Delhi.
9. Kumar Santosh, M.P. Poonia and S.C. Sharma (2021). Environmental Studies. Khanna Book Publishing Co. (P) Ltd., New Delhi.
10. Gupta Susmita and Abhik Gupta (2021). Environmental Studies: Principles and Practices. Sage Publications, New York.
11. Dr. Saran R.K. (2023). Environmental Laws and Legislations in India: Futuristic Research Trends. Notion Press, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Skill Development (SD – 11A)
Course Title	Planning Studio - IA LOCAL AREA PLANNING
No. of Credits	5 (L: 0; T:0; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to conduct thorough site analysis and assess site suitability for development and existing infrastructure integration.
- to design comprehensive physical and social infrastructure solutions by applying relevant planning guidelines and standards.

Course Contents

Each student in a group or individually shall be required to prepare infrastructure plan for an Urban Area/ Village. The exercise shall cover the following aspects:

a) Preliminary site investigation and analysis:

- Site inventory: topography, soil characteristics, site resources and physiographic conditions.
- Site suitability for development – slope, drains.
- Site in relation to its surrounding and city/village level infrastructure lines.
- The proposed layout and population distribution.

The students will visit the selected area of the study for the exercise as decided by the concerned teacher(s).

b) General planning guidelines

c) Application of norms and standards

d) Requirements

e) Design considerations and conceptual plans

f) Proposals for infrastructure: Physical - water supply, sewerage network, drainage, rain water harvesting, street & street furniture, solid waste management; Social – education, health, recreational, postal, religious

The plan shall be suitably presented in the form of a report illustrated with necessary drawings, maps charts, diagrams and photographs.

Course Outcomes: By the end of this course the students will be able

- to demonstrate effective site analysis and evaluation.
- to develop well-integrated and feasible infrastructure designs.
- to apply planning norms and standards accurately.
- to present infrastructure plans clearly and utilize site visit data to refine infrastructure proposals.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development (SD – 11B)
Course Title	Planning Studio - IB APPLIED SOCIO-ECONOMIC TOOLS FOR PLANNING
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand socio-economic tools and data to analyse them to interpret to implement projects.
- to expose the students to know about the sources of Information (Census, UN, NFHS, NSSO, CSO, etc.) for projections and how to use them.
- to train the students about the statistical tools for the analysis of current conditions and future projections and for modelling the future scenario.

Course Contents

Concepts in Sociology and Tools for Planning

Sociological concepts and methods, man and environment relationships; Socio-cultural profile of Indian society and urban transformation; Tradition and modernity in the context of urban and rural settlements; Issues related to caste, age, sex, gender, health safety, and marginalized groups; Displacement, resettlement and rehabilitation due to compulsory land acquisition.

Community and Settlements

Social problems and social structure and spatial planning; Role of socio-cultural aspects on growth patterns of city and neighbourhood communities; Social planning and policy, and community participation; Marginalization and concepts of inclusive planning, and gender concerns in planning; FGD, Stakeholders meetings, Perception and Vision Analysis, and other social tools for social analysis.

Concepts in Economics & Its Applications in Planning

Concepts of demand, supply, elasticity and consumer markets; concept of revenue costs; Economies of scale, economic and social costs, production and factor market; Different market structures and price determination; market failures, cost-benefit analysis, Determinants of national income, consumption, investment, inflation, unemployment, long-term investment planning. Fiscal Budget Responsibility Management (FRBM). Agglomeration Economies and Diseconomies and spatial planning.

Development Economics and Lessons from Indian Experiences

Economic growth and development, quality of life; Human development index, poverty and income distribution, employment and livelihood; Economic principles in land use planning; Economic Policies and strategies in economic planning, balanced versus unbalanced growth, Local Economic Development and sectoral push; Land Value Capture

Visits to a Village / Small Town to Ascertain Socio-economic Report

Course Outcomes: By the end of this course the students will be able

- to design surveys, collecting and analyzing data, and using findings to inform infrastructure planning and policy decisions.
- to analyse the socio-economic impacts of projects and policies, identifying key issues to enhance social equity and community well-being.

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Course Code	As per Institutional Policy
Nature of Course	Skill Development (SD – 11C)
Course Title	Planning Studio - IC SPATIAL TECHNOLOGIES
No. of Credits	1 (L: 0; T:0; U: 2)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to expose students to drone data processing techniques
- to use geospatial technology for urban mapping
- to understand remote sensing and image analysis for urban areas
- to provide technical inputs for the use of GIS in planning and perform planning analyses using Geographic Information Systems as a tool.

Course Contents

Basic Principles of Remote Sensing

Concept and Scope of Remote Sensing: Definitions, Process, and Characteristics of Remote Sensing System, Advantages and Limitations; Types and Characteristics of Sensor: Imaging and non-imaging sensors, Active and passive sensors, Resolution of Sensors: Spectral, Spatial, Radiometric & Temporal; Swath, coverage, Scale, Mapping unit, multiband concepts, False Colour Composites, Multispectral and Hyper-spectral Remote Sensing. Drone Image Capturing, types of drones, Scale and Regulations; Show Remote Sensing, Drone data and GIS software platforms and students can get a hang of the new software and its UI. Downloading Satellite imagery, File import and conversion, Layer stack, Mosaic, creation of AOI and image subsets/clipping

Advanced Remote Sensing Analysis Techniques

Indices (NDVI, NDBI, etc.); Supervised and unsupervised classification with accuracy assessment, kappa coefficient, and matrix; Pattern recognition (Spatial and temporal); Time series and Change detection techniques.

Basic Concepts for Working in GIS

Definition and Components of Geographic Information System, Functionality, and Areas of GIS Application, Advantages and Limitations of GIS; Variables: points, lines, polygon; Spatial and Attribute Data, Data Structures: Raster and Vector data structures, Spatial and non-spatial data of GIS, and formats, Geo-database, Digitization, and geo-referencing

Geography Required for GIS

Coordinate system and its types: Cartesian, Geographic, Projected; Northing & Easting and Latitudes & longitudes: conversion of latitude-longitude between different formats; Difference between real earth surface, geoid, and ellipsoid; Concept of horizontal datum, vertical datum, UTM and UTM Zones; Map projections and their various types

AutoCAD Software and its Application in Planning

AutoCAD is a computer-aided design software developed by the company Autodesk (hence the name AutoCAD). The AutoCAD software is primarily used to create and represent detailed 2D and 3D drawings, plans, and models in a variety of industries, such as Architecture, Planning, Engineering, and Construction. It allows the planners to create precise and accurate

drawings using a range of tools and features. The errorless presentation of the overlays of various drawings, details and blow-ups not only help in enhancing the explanatory skills but also enables the implementation and execution team to flawlessly accomplish large scale projects with large efficiency.

The manual drawings can work upto a limited scale whereas the AutoCAD drawing allows you to design down to fractions. Thus, creating a more accurate design in all dimensions. Once the design is created, it can be bedded into a 3D printer or a machine for a prototype to be created and the measurements from the drawing can be used to create parts of something that can be built such as a building or house.

Course Outcomes: By the end of this course the students will be able

- to use various commands, digitization tools, preparation of various plans, and analyse/interpret the data using the software to produce the desired results.
- to present of problems, potentials, future projections, and spatial proposals through various maps based upon aims and objectives of a project for the study area.

Model Curriculum for 3.1.1.: Two-Year M. Plan/ M. Tech (Urban and Regional Planning)

Programme Objectives

- The Programme of master's in planning Urban and Regional Planning is designed to prepare students in the skills of analysing the physical, social, cultural, economic and ecological dimensions of urban and rural settlements.
- To comprehend the issues in cities/towns, city regions, and rural areas, to plan and design for the current and future of metropolitan cities, towns and rural areas new innovative tools and policies needs to be developed and imparted to the new generation of planners. Along with a group of core courses common to all planning programmes, specializations are built around courses such as city and metropolitan planning, urban infrastructure, municipal finance, urban information system, GIS, community participation, disaster risk reduction and resilience, District Planning and rural development, Resettlement and redevelopment, development management and governance, project planning, policies and laws, professional practice and ethics.
- The programme includes studio exercises in plan preparation through live case studies related to comprehensive and micro level - urban development, regional level, including metro regional level - issues, and problems related to various cities, towns and rural areas in the country.

Programme Outcomes

- At the end of this course, a student may be well equipped to prepare a Master Plan/City Development Plan/Metropolitan Regional Plan, District Planning and Village Planning, can make the plan at various scales such as site planning to regional level plans. They can be employed from Central government, State departments, District Planning Authority/Board, Municipality/Municipal Corporations/Towns Panchayats, Metropolitan Development Authority, SEZ, Investment Zones, etc. for plan preparation, plan implementation, monitoring and evaluation.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-21)	City and Metropolitan Planning	2	1	0	3
	Major (MRP-22)	Regional Planning	2	1	0	3
	Minor (MRP-21)	Real Estate Market and Land Management	1	1	0	2
	Minor (MRP-22)	Urban & Regional Infrastructure	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Village, Cluster and Block Planning	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-31)	Institutions and Governance	2	1	0	3
	Major (MRP-32)	District Planning and Rural Development	2	1	0	3
	Minor (MRP-31)	Transport Corridors and Regional Development	1	1	0	2
	Minor (MRP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B Regional Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-41)	Development Finance	2	1	0	3
	Major (MRP-42)	Legislation and Professional Practice	2	1	0	3
	Minor (MRP-41)	Project Planning and Management	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major MURP - 21
Course Title	CITY AND METROPOLITAN PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the problems and concepts of urbanization in various metropolitan cities as well as area of influence of metropolis with understanding of global metropolis as well as Indian cities.

Course Contents

Unit 1: Theories of Development and Urban Structure

Growth of cities; cities as engine of growth; Urban sprawl; Land value, economic attributes of activity location; Economic forces in urban development; Structure of City Regions, Area of influence; Impact of technology on urban forms; Transportation and urban form; Location characteristics and impact of urban settlements.; Theories of urban structure and land use- Centre place theory, urban realm model; New urbanism; Territorial Development Theory: Growth pole theory, urban bias critique, secondary cities and urban diffusion; System approach to planning; Threshold analysis, retail location and industrial location analysis; Transport system analysis; Desakota model; Emerging Rural Urban Relationship models globalisation and extended metropolitan region; Networked model; Peri- urban Interface (PUI) case studies.

Unit 2: Planning Norms and Standards

Land use standards for residential, industrial, commercial, institutional, transport, ecological spaces, recreational areas etc.; Space standards based on population for facility areas, utilities and networks, performance standards; URDFPI, RADFPI, Hill Area Development Guidelines, standards and other model guidelines by State and Central development Ministries (Central) and States; Building Bye-Laws, FSI and Formed based norms and standards.

Unit 3: Plan Preparation Approaches and Techniques

Approaches for preparation of Urban development plans, Master Plans, Structure plans and Strategy Plan; Public Participation and Plan Implementation; Zonal and Local Area Plan; Techniques of urban renewal and redevelopment; Special area planning: definition, types, attributes, requirements, planning process; Inner areas, peri-urban areas issues and planning approaches; Smart City: Concepts, Elements, Features, planning approach and strategies, policy efforts in India; Inclusive planning.

Unit 4: Best Practices in City and Metropolitan Planning

Best practices of city and metropolitan planning in India and abroad, inter-disciplinary policy issues and public actions for guiding city and metropolitan development.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate urbanization and terminologies regarding urban areas.
- to appreciate the legislative structure for metropolitan planning and development.
- to analyse the nature, form and planning of metropolitan cities and regions in India.
- to have a global perspective regarding planning and development strategies of metropolis

References:

1. Aggarwalla Astha. (2011). Agglomeration Economies and Productivity Growth in India. Indian Institute of Management, Ahmadabad.
2. BMRDA (2016). Bangalore Metropolitan Region Revised Structure plan 2031. BMRDA, Bangalore.
3. Board N. C.R. P. Regional Plan 2021. National Capital Region. Government of India, New Delhi.
4. Clark G. and T. Moonen (2014). Mumbai: India's Global City. Brookings Inst Pr., Massachusetts.
5. Glasson J. (1974). An Introduction to Regional Planning. Taylor and Francis Ltd., London.
6. HMDA. (2013). Metropolitan Development Plan – 2031 for Hyderabad Metropolitan Development Region. HMDA, Hyderabad.
7. Jaidit Brar S. G. A. M. C. M. S. R. M. S. (2014). India's Economic Geography in 2025: States, Clusters and Cities. McKinsey and Company, Delhi.
8. KMDA. (2000). Perspective Planning for metropolitan Development, Kolkata. KMDA, Kolkata.
9. Ministry of Urban Development. (2014). Regional Planning Approach, URDPFI Vol. I and Vol.2. Government of India, New Delhi.
10. Wheeler S. (2009). Regions, Mega regions, and Sustainability. Regional Studies, Vol. 43.6, pp. 863-876, Routledge Informa Ltd, England.
11. Bhattacharya Shromoyee & Sujaya Rathi (2015). Re-conceptualizing Smart Cities: A reference framework for India. Niti Aayog, Government of India.
12. The World Bank (2015). World: Inclusive Cities Approach Paper. Report No. AUS8539. IBRD, The World Bank, Washington D.C.
13. Deuskar Chandan (2020). Informal Urbanization and Clientelism: Measuring the global relationship. Sage, London.
14. Mahadevia D. (2024). Urban Planning and its Discontents: Practice in Contemporary India. Taylor & Francis Books India Pvt. Ltd, London.
15. Keitel M.L. and Lukas Behrend (2023). The Topology of Planning Theories. Springer, Berlin.

Recommended Journals:

1. Jain S, J. Panda, and S. Kant. (2014). Possible Socio-scientific Issues of Land-use and Land-cover Change Impact and Associated Tools of Study with a Special Reference to Delhi-Mumbai Industrial Corridor Region. International Journal of earth and Atmospheric Sciences, Vol. 1, pp. 58-70.
2. Strategia A. (2015). Tools and Technologies for Planning the Development of Smart Cities. Journal of Urban Technologies, Vol. 22, No. 2, pp. 43-62.

Course Code	As per Institutional Policy
Nature of Course	Major MURP – 22
Course Title	REGIONAL PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of regions, delineation of various types of regions, and its development.
- to understand the theories of regional development
- to understand Indian region typology and its use in the planning process.
- to understand various programmes and projects associated with various types of regions in India.
- to understand the tools of regional development.

Course Contents

Unit 1: Concepts and Typology of Regions

Basic Concepts in Regions; Defining a region: fluidity and purposiveness; Typology of Regions: Resource Regions, Mega, Macro, Meso, and Micro Regions; Use of clusters in regional planning; Delineation of Regions (Regionalisation); Concept of Global city regions; City beyond region; Rural Settlement Analysis: Types, activity, environment and economic interface in rural habitat; Technology in rural settlement.

Unit 2: Regional Dynamics

Growth of Mega and Metro Regions: Scale, Complexity and its impact on national and international scenario, convergence and divergence; International Regions: SAARC, BRICS, Latino Region, EU Region, etc.; Regional Economy, competitiveness among regions, backward and leading regions in development; Special Regions: SEZ, Agro Regions, Ecological regions, etc.; Regional Disparity Analysis (through factor analysis); Regional Interdependence Analysis (through Input- Output model).

Unit 3: Regions in India and its Planning

Resource Regions; Corridors as regions: National, Sub-National, State, sub-state level (District), Blocks and Clusters as a region; Macro, Meso and Micro regions in India; Case Studies from India: NCR and Delhi Mega Region, Mumbai Mega Region, Kolkata Metro Region, Chennai Metro Region, and other Metro Regions in India; Western & Eastern Ghats, North Eastern Region, Coastal Regions, and River Valley Regions; Corridors: Golden Quadrilateral, Delhi-Mumbai, Chennai-Bangalore Industrial Corridor, North-South and East-West Corridor Regions; Core, Fringe and Periphery in a Region and its planning.; Tools and techniques available for planning regions in India; Role of 73 and 74 CAA in regional plan preparation and implementation.

Unit 4: Spatial Inequalities and Regional Disparities

Indexing Spatial Disparities/Inequalities: District Development Product, State Development Product, and National GDP; Human Development Index, Infrastructure Index, Environmental Index, Social Development Index, and Fiscal Transfers based on Indices. Overcoming inequalities: Spatial, economic, social, infrastructure, governance, etc.; Tools and incentives used for balancing the development, Sectoral push, Investment Regions, etc.; Use of Thermal Imageries and Satellite Imageries for assessing inequalities over space.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate tools and indicators to be used in regional planning.
- to appreciate the programmes and projects associated with various types of regions in India.

References:

1. Rengasamy S. (2009). Types of Regions and Regionalization of India. Madurai Institute of Social Sciences.
2. Wheeler S. (2009). Regions, Mega regions, and Sustainability. Taylor and Francis, New York.
3. Department of Town and Country Planning (2005). Decentralised Development Plan. Government of Kerala, Thiruvananthapuram.
4. United Nation Development Program (2008). Decentralised Development Plan. UNDP, New Delhi.
5. GIZ (2018). Regional Development Guidelines: Urban Vertical, Technical Collaboration with Government of India & Germany, New Delhi.
6. Walter Isard (1975). Introduction to Regional Science. Prentice Hall, New Jersey.
7. The World Bank (2009). New Economic Geography. Washington DC.
8. Nallari Raj, Breda Griffith, and Shahid Yusuf (2012). Geography of Growth: Spatial Economics and Competitiveness. The World Bank, Washington DC.
9. Tukker Arnold, and Erik Dietzenbacher. (2013). Global Multiregional Input-Output Frameworks: An Introduction and Outlook. Taylor and Francis, New York.
10. Board N.C.R.P. Regional Plan (2021). National Capital Region. Government of India, New Delhi.
11. Ministry of Panchayati Raj. (2021). Rural Area Development, Formulation, Policy. Government of India.
12. Ministry of Panchayati Raj. (2022). SVAMITVA. Government of India.
13. Jiwan J. (2021). Regional Development and Planning. Rawat Publications, New Delhi.
14. Dr. Ghosh T.K. and Dr. Satyen Sarkar (2022). Regional Disparities in Economic Development: Policies and Prospects for Balanced Development. Serials Publications Pvt. Ltd., New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Minor MURP - 21
Course Title	REAL ESTATE MARKET AND LAND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of land markets (formal and illegal), supply and demand equations, types of markets, and typology of land uses related to markets and their impact on spatial development. It will also give the tools for land management in urban and rural areas.

Course Contents

Unit 1: Introduction to Land Economics

Economic Principles of Land use; Real Estate Economy Types: Residential, Commercial, etc., Market: Types of Markets, Concept of Rent and its application; Demand forecasting for land and Real Estate, factors affecting land and real estate: supply and demand; Interpretation of Revenue Maps (Cadastral maps); Use of GIS Based Mapping and SVAMITVA for land titling, & Property Titling.; Market Conditions: formal and informal, legal and illegal by Markets; Instruments of land policy and impact on markets: Planning instruments, market development instruments, financial development instruments, fiscal instruments, and other supportive instruments; Market by Government and Government Regulation, monopoly power and its use, private development; Rent-seeking and its impact on land supply, access to land by various segments of population and PPP in land; Introduction to Resettlement & Rehabilitation (R&R).

Unit 2: Demand Side Management

Income elasticity of land, business cycles and its impact on demand for land; Externalities and internalities in land development and induced demand; Economic growth and demand for land; Changes in tastes and preferences and its effect on type of land; Poor and their demand; Physical, fiscal, financial and legal incentives for inducing or restricting the demand for land; Mega investments and its effect on land; Property Rights: ownership, user and exchange rights: Its implication on land supply; Land Development: Type, cost, methods of disposal; Corruption and land markets: Corruption, black money and land markets; Relation between land, share and gold markets.

Unit 3: Supply Side Management

Regulation in Land Markets: Social justice and land distribution: public domain, social-democratic regulation, corporatist regulation, collective action of the state and regulation of its supply of land; Overall impact of regulation on land prices: Master Plan, Zoning and other planning regulations and their impact on supply; Land conversions and its regulation/facilitation in peri-urban areas; Land utilization analysis; Common property and its use, tenancy and ownership, holding size and its relevance; Land Management Techniques: Private land assembly, TPS, co-operatives in land development, FDI in land development, land pooling and plot reconstitution, transfer of development rights, land sharing and land lease.

Unit 4: Land Pricing & Land Information System (LIS)

Land valuation techniques; Land pricing; Subsidies; Auctions; Type of development: plotted, flatted system, and their effect on land pricing; Hedonistic pricing; Land price behaviour in urban centres; Constructing the land price index; Government incentives for land supply, assembly and planned development; Sources of information for land information; Land records

in Urban and Rural areas: GIS Based property valuation (Unit based pricing, zone based, etc.); Peri-urban areas (SVAMITVA) transparency in land transaction, methods of publicising land price monitoring.

Course Outcomes: Upon the completion of this course, the students will be able to

- to assess land development by applying appropriate tools in the core and fringe areas of a city.
- to appreciate typology of markets, and methods to manage the land development for orderly spatial development.

References:

1. Pirounakis Nicholas G. (2012). Real Estate Economics a Point-to-point Handbook. Routledge, London.
2. Di Pasquale, Denise, and William Wheaton. (1995). Urban Economics and Real Estate Markets. Upper Saddle River. Prentice Hall, New Jersey.
3. Ling D. C. and R.A. Wayne Real Estate Principles: A Value Approach, McGraw-Hill: New York.
4. Brett, Deborah L., & Schmitz, Adrienne (Second Edition), Real Estate Market Analysis – Methods and Case Studies, Urban Land Institute, Washington D.C.
5. Jacobus, Charles J. (Eleventh Edition), Real Estate Principles, Cengage Learning, Mason, OH, USA.
6. Zachary Grossman, Pincus Jonathan, Shapiro Perry and Yengin Duygu (2018). Second-Best Mechanisms for Land Assembly and Hold-out Problems. Working Paper No. 2018-14. The University of Adelaide, Australia.
7. Moss A. and Kieran Farelly (2024). Global Real Estate Capital Markets: Theory and Practice. Routledge, London.
8. Mohanty K.P. (2021). Land Economics and Policy in Developing Countries. Sage Publications Pvt. Ltd., London.
9. Burman Anirudh (2024). Land Markets. Carnegie India, New Delhi.
10. Nagarajaiah K.S. (2022). Principle and Practice for Valuation of Land and Building. K S Nagarajaiah.

Course Code	As per Institutional Policy
Nature of Course	Minor MURP - 22
Course Title	URBAN & REGIONAL INFRASTRUCTURE
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of critical infrastructure for a region such as land development for mega projects i.e., dams irrigation system, agricultural markets, health, education, spatial information system, LIS, public distribution system, and energy in addition to road and railway infrastructure.

Course Contents

Unit 1: Infrastructure Management: Planning Issues

Equity, Access, level and Efficiency; Quality of Service; Paying Capacity; Pricing of Infrastructure Services; Ownership and Control: Public, Private, SPV, and PPP Models; Infrastructure provision; Multi-service providers and their operation at various levels; Infrastructure Policy: Regulatory and Facilitative; Investment Requirement at various levels and actual investments in Infrastructure; Infrastructure Index.

Unit 2: Role and Functions of Infrastructure in an Urban and Region

Role of Infrastructure in urban and regional development; Critical Infrastructure in Urban and regional development and Indicators of infrastructure development in defining regional development; Standards and benchmarks for infrastructure provision and delivery at various levels; Role of Spatial Information Technology in the planning, provision, and monitoring infrastructure; Regional Resource Mapping across forest resource, mineral resource, agricultural resource, water resource etc.

Unit 3: Physical Infrastructure

Water and Sanitation: Policies, Programmes, urban and rural variations in water, sanitation; Multi-purpose of demand for water in rural areas, irrigation: demand and supply, and pricing; Policies and Programmes in the provision of Sanitation at various levels: Rajiv Gandhi Technology Mission on Water supply and Sanitation (Urban & Rural), City Sanitation Plan, and State Sanitation Strategies; Sanitation and MDG; Resource Commitment for Sanitation; Access to Sanitation: Cost and Coverage; Role of Institutions: Public, Private and community; Sanitation and environment; Sanitation and health; Solid and liquid Waste Management; Urban and rural solid and liquid waste management policy, collection, treatment and disposal from rural area, urban areas and associated environmental issues.

Unit 4: Social, Economic and Digital Infrastructure

Health: Provisions, availability, access and future requirement, government policies; Education: Provisions, availability, access and future requirement, government policies; Socio-Cultural and Recreational: Provisions, availability, access and future requirement, government policies; Agriculture Extension Centres; Agriculture Marketing/ storage; Banking and Insurance; Tourism Infrastructure: Ports, Airports, Inland Waterways, Special Economic Zones (SEZ). Energy, Railways and Digital infrastructure; Roads: Provision and institutions involved, Investment, pricing and maintenance, Access, Coverage and conditions; National, State and District Policies towards Roads. National Highway Project: Golden Quadrilateral, North-South and East- West Corridors and its impact on regional space; PMGSY and its impact on village

connectivity; BRDO and International Roads: border roads, international roads and backward regions; Forward and Backward regions in terms of road provision; Railways: Goods and passengers train, dry ports, container depot etc., high-speed connectivity and Metro and Supply projections; Investment and pricing; Trans-boundary issues in production and sharing; Privatization issues; Nuclear Energy: issues involved and probable spatial impact.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the regional infrastructure for the preparation of regional development plan at metro regional and other regions.

References:

1. Sethi V.K. (2007). Infrastructure Development in India. New Century Publications, New Delhi.
2. Ministry of Urban Development (2011). Report on Indian Urban Infrastructure and Services. The High Powered Expert Committee (HPEC) for Estimating the Investment Requirements for Urban Infrastructure Services, Government of India
3. National Institute of Urban Affairs (1997). Financing Urban Infrastructure in India: Research Study Series 59. NIUA, New Delhi.
4. Venugopal R.A. (2009). State of Urban services in Indian cities. Oxford University Press, New Delhi.
5. Ministry of Urban Affairs & Employment (2014). Urban & regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
6. McLoughlin Brian J. (2019). Urban and Regional Planning: A Systems Approach. Rawat Publications, New Delhi.
7. Heathcott Joseph , Jonathan Soffer and Rae Zimmerman (2022). Urban Infrastructure: Historical and Social Dimensions of an Interconnected World. University of Pittsburgh Press, Pennsylvania.
8. Rana Muhammad Ehsan and Manoj Jayabalan (2023). Emerging Technologies for Digital Infrastructure Development. Bentham Books, Sharjah.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO – 2A QUANTITATIVE METHODS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the statistical tools for the analysis of current conditions and future projections and for modelling the future scenario.

Course Contents

Unit 1: Introduction to Statistics, Organising Surveys & Data Collections

Statistics, Functions of Statistics, Applications and Limitations of Statistics; Organising a statistical survey: Techniques of data collection, choice of frame, Degree of accuracy desired, Design of forms, field investigators; collection of Data: Primary and Secondary Data, Drafting the questionnaire, Sources of Secondary data, Editing primary and secondary data.; Census of India tables and its usage in planning; CSO/NSSO/NFHS data and its usage in planning; linking Census of India to NSSO tables.

Unit 2: Sampling, Sample Designs and Classification & Tabulation of Data

Census and Sample Method; Theoretical basis of sampling, Methods of sampling, Size of sample; Classification and Tabulation of data: Meaning and classification of objectives, types of classification, Frequency Distribution; Tabulation of Data: Difference between classification and tabulation, types of tables; soft wares for tabulation.

Unit 3: Measures of Central Value, Dispersion & Skewness, Moments, Kurtosis

Types of Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, General limitations of average. Measures of Dispersion: Measuring Variation: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variations, Chebyshev's theorem, Lorenz curve. Difference between dispersion and skewness, measures of skewness, Moments, Sheppard's correction; Kurtosis.

Unit 4: Correlations and Regressions

Correlation and Causation; types of correlations, Partial and multiple correlation, scattered diagram method, Graphic method; Karl Pearson's coefficient of correlation; Probable Error; Coefficient of Determination, Rank Correlation, Concurrent Deviation method. Regression: Regression lines, Regression Equation; Regression equations in case of correlation table, Standard Error of Estimate. Time Series: Measurement of Trend, Seasonal, cyclical and irregular variations; Introduction to Interpolation and Extrapolation.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate practical skills in analysing and visualization of data.
- to carry out projections and scenario building.

References:

1. Gupta, SP. (2024). Statistical Methods. Sultan and Chand, Delhi.
2. E. Reid and Keunhyunk Park. (2020). Basic Quantitative Research Methods for Urban Planners, Routledge, London.
3. Anusha Illukkumbura (2020). Introduction to Regression Analysis. Amazon Digital Services LLP.
4. Lohr Sharon L. (2022). Sampling Design and Analysis. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO – 2B VILLAGE, CLUSTER AND BLOCK PLANNING
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to expose the students in the practical ways of planning for a village, cluster, block, and tehsil.
- to train the students in applied GIS based on the case study selected.
- to expose the students to the complexities of planning at various levels i.e. village, block, tehsil, peri- urban and urban levels.
- to identify data sources, carry out primary surveys, understand sampling methods, stakeholder analysis, techniques of analysis and come out with policy level proposals.

Course Contents

Studio will be focusing on Village study, Clusters, Block Development Plan. The studies will focus on spatial, socio-economic, infrastructure, fiscal, institutional governance, legal and financial aspects revealing inter-sectoral issues and challenges to suggest planning measures and strategies for preparing village, cluster, and block development plan based on RADFI and SVAMITVA guidelines.

Course Outcomes: Upon the completion of this course, the students will be able

- to analyse the existing baseline situations of the city and identify sectorial issues and challenges of development.
- to carry out forecast, build future scenarios for Master Plan / City Region Plan and detailed out plan proposals.

References:

1. Ministry of Housing and Urban Affairs. (1992). 74th Constitutional Amendment Act. Government of India, New Delhi.
2. Ministry of Panchayati Raj. (1992). 73rd Constitutional Amendment Act. Government of India, New Delhi.
3. Ministry of Urban Affairs & Employment (2014). Urban & regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
4. Ministry of Panchayati Raj (2012). RADFPI Guidelines for Gram Panchayats. Government of India. New Delhi.
5. Ministry of Rural Development (2015). Shyama Prasad Mukerjee Rurban Mission. Government of India, New Delhi.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Model Curriculum for Two-Year PG Programmes in Planning

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) <i>To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester</i>
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- *to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.*

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- *to get the current knowledge in the field of urban/metro region planning, projects, etc.*

Course Code	As per Institutional Policy
Nature of Course	Major MURP - 31
Course Title	INSTITUTIONS AND GOVERNANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the formal and informal institutions involved in development process, type of governance system, efficiency, and equity.
- to understand with the digital governance at various levels from Ward to Regional level for governance.

Course Contents

Unit 1: Institutions in Planning

Type of institutions, their role and relevance (legal, political, social, cultural and economic institutions); Formal and informal institutions and spaces: their interface, conflicts, reach and their effectiveness in planning; Analysing the institutions: Methods, process and evaluation; Role of the State in Planning: Market facilitative, regulatory and monopoly power; Hierarchies, Scales and Levels of Planning Institutions; Formal and informal institutions such as constitutions, electoral rules, property rights, and civil rights; How and why people in different groups, countries, and cultural context of institutions to facilitate collective action; Whether different groups construct distinctly different institutions to deal with similar problems and why similar institutions seem to work differently in differently in distinct societies.

Unit 2: Institutions, Organisations and Planning Institutions

Different between organizations and institutions, government and governance; Organisations: types, concepts, theories, structure and functions; approaches to understanding organizations; Town & Country Planning Organization, Urban Development Departments, City Improvement Trust, Development Authorities, Municipal Corporation etc.: objectives, functions and duties, organisational structure, technical capacity, statutory obligations, budgetary outlays, coordination and implementation issues; Institutional building: factors and processes, institution Process and networks: how the network operates; Present Institutions dealing with urban and regional planning; Post 73rd and 74th CAA environment and the modified role and functions of local bodies, local authorities, district authorities and state level agencies; Case studies; Digital Governance.

Unit 3: Decentralisation of Powers

Development Planning and Indian state-centralisation, State-Local Governments, powerlessness, decentralization; Institutional frame and mechanism for urban governance as envisaged in 73rd and 74th CAA; Transfer of power from Centre to State and State to Local government; Role of the existing various states in the light of CAA; Role of various institutions in the governance process and access to government by various stakeholders; Digital Governance, E-Democracy, E-Governance and Grievances Redressal system; Case study related to digital and e-governance.

Unit 4: Participatory Governance & Network Governance

Benefits of participation in community planning: process and principles of community planning, bottom up planning process, community building process, community planning, partnership; Community rights and physical planning norms/standards; Public distribution

system; Community-based evaluation of planned projects; Community Participation Laws, Partnership; Community rights and physical planning norms/standards; Role of the state in relation to other Stakeholders (NGOs, Private Sector, Scientific Network and international institutions); New State Spaces: Invited and contested spaces: changing role of the state-emergence of middle class and its socio-political space, collective bargaining and collective action; Role of donor agencies; Advanced Locality Management, Resident Welfare Associations and other agencies in the governance system; Role of People's participation in planning process: Process of inclusion and exclusion in governance.

Course Outcomes: Upon the completion of this course, the students will be able

- to equipped to understand the various hierarchy and typology of institutions and spatial development is govern by them.
- to appreciate the sectoral convergence and divergence for development process in spatial development.

References:

1. Klijn E.H. and J.F.M. Koppenjan (2012), Governance network theory: past, present and future, Policy and Politics. Department of Public Administration, Erasmus University Rotterdam, Netherlands.
2. Le Galès, P. (2001). Urban governance and policy networks: on the boundedness of policy networks. A French case. Springer, Berlin.
3. Osborne S.P. (2010). The new public governance: emerging perspectives on the theory and practice of public governance. Routledge, London.
4. Rhodes R.A.W. (1997). Understanding Governance. Open University Press, Buckingham.
5. Rogers D.L. and D.A. Whetten (1982). Inter-organizational Coordination: Theory, Research, and Implementation. Iowa State University Press, Ames.
6. Teisman G.R., A. van Buuren and L. Gerrits (2008). Managing complex governance networks. Routledge, London.
7. Singh Sukhpal, Jyotsna Jha, A. Indira and A.V. Arunkumar. (2024). Institutions and Public Policy for India's Sustainable Development. Routledge, London.
8. Rydin Y., Robert Beauregard, Marco Cremaschi and Laura Lieto (2022). Regulation and Planning: Practices, Institutions, Agency. Routledge, London.
9. Kapucu Naim (2020). Network Governance: Concepts, Theories, and Applications. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major MURP - 32
Course Title	DISTRICT PLANNING AND RURAL DEVELOPMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the administrative dimensions of spatial planning in India managed from the state to gram panchayat through district planning process.
- to understand various spatial districts planning being done in India and how various institutions are involved in the development process including budget preparations.
- to understand the concept of spatial budgeting and its interface with DDP.
- to understand the RUBAN Mission, RADFPI, SVAMITVA and other Gram Panchayat area's spatial development planning.
- to understand various development programmes and projects at district and gram panchayat levels are carried.

Course Contents

Unit 1: Introduction

Decentralised Planning in India: Historical Development in decentralized district level planning; District and Block Planning; 73rd and 74th Constitutional Amendment Acts; Participative District Planning, Role of Planning Commission and an Overview of District Planning Manual of Planning Commission of India; Finance Commissions, and ICT in District Planning.

Unit 2: District Planning

Data Management and District Level Visioning; Institutional and other support for District Planning Committee; Bridging gap through district planning, resource mapping and determination of funding sources; Consolidation of urban and rural plans; Multi-Sector and multi-level integrated approach to planning (vertical and horizontal spatial integration); Rural-Urban spatial relationship; District Development Plans: Guidelines for District Planning: Content, context and methodologies; Village Development Plans: an Integrated approach, rural norms and standards (spatial); Capacity Building for Decentralised Planning; Democratising Information: using media for district development; Special Component Plan: Tribal Sub Plan and Weaker Sector Plan allocation, Direct Cash Transfer, Affirmative Action etc., implementation, monitoring and evaluation; North Eastern Plan

Unit 3: Rural Planning and Development

Introduction: Meaning, Scope and overview of rural development; Historical perspective Rural Development Programmes in India, Problem/perception and identification; Rural Area Planning: Programmes/Policies/ Schemes for rural development, their coverage and outcomes; Rural Infrastructure Development Schemes; Rural Employment Schemes; Digital Inclusion for beneficiaries; Micro financing (SHGs): Sustainable Livelihood; Programmes: Command Area Programme, Drought Prone Area Programme, Backward Area Development Programme, North Eastern Development Programme etc.; Technology Missions: Water, Sanitation, etc.

Unit 4: Transforming Rural Areas of India

Consumption pattern changes, land utilization changes, cropping pattern changes, holding size change, living standard changes, changes in asset ownership: its implication in the planning process; Aspirational Districts and Blocks, Smart Villages.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the various hierarchy of District planning, budgeting and various government programmes and projects.
- to appreciate the spatial rural development and their programmes and model spatial developments.

References:

1. Singh K. and A. Shishodia (2016). Rural Development Principles, Policies, and Management. Sage Publication, New Delhi.
2. Chopra K., G. K. Kadekodi and M. N. Murthy. (1990). Participatory development people and common property resources. Sage Publication, New Delhi.
3. Jin L., Qian, G. and Yan, W. (2012). Industry-city Integrate Development Oriented High-tech District Development and Planning Strategies: Jinan East High-tech District Case.
4. Lekorwe M.H. (1998). Local government and district planning. JL Van, Schaik.
5. Inamdar N.R. and Kshire, V.K. (1986). District Planning in India: A Case Study of Maharashtra, IBH Publishing Company, Oxford.
6. Thakur D. and Singh, S.N. (1991). District Planning and Panchayati Raj. Deep and Deep Publications, Delhi.
7. Yugandhar B.N. and Mukherjee, A. (1991). Readings in Decentralised Planning with Special Reference to District Planning, Vol. 1. Concept Publishing Company, Delhi.
8. Hooja R. and Mathur, P.C. (1991). District and Decentralized Planning. Rawat Publications, New Delhi.
9. Planning Commission India. (2008). Manual for Integrated District Planning, Government of India.
10. Hooja R. (1973). The District as a Planning Unit: Style and Locus. Journal of Public Administration, Indian.
11. UNDP. (2020). Aspirational Districts Programme: An Appraisal, United Nations Development Programme. India Office, New Delhi.
12. Yigitcanlar Tan, Surabhi Pancholi, Niusha Esmaeilpoorarabi, Rosemary Adu-McVie (2024). Innovation District Planning: Concept, Framework, Practice. Routledge, London.
13. Jha S.K. (2022). Rural Development Administration in India. Arjun Publishing House, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Minor MURP – 31
Course Title	TRANSPORT CORRIDORS AND REGIONAL DEVELOPMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the concept of corridor development, which has been influencing urban development.
- to understand the influence of national highways on industrial corridors, investment corridors, and other special corridors, and urban and regional development.
- to understand the growth drivers and how it stimulates the urban and regional dimensions through growth nodes/foci.

Course Contents

Unit 1: Importance of Land Use- Transport Integration

Land use and mobility patterns in cities; Implications of land use patterns on transport and mobility; Land use and transport decisions; Need for sustainable development and sustainable transport; Need and benefits of land use transport integration; Case cities of land use–transport integration.

Unit 2: Principles of Land use – Transport Integration and linked Transport Model

Land use transport integration: definition and concept, land use transport cycle, importance of accessibility, factors affecting land use transport integration, tools for Land use-Transport Integration, key elements of integration; Integrating land use and transport in the planning process; Institutional integration and legal mechanism; Components of Land use transport model, accessibility: concept, measures and quantification; Types of land use transport model: Density saturation gradient method, Hansen’s accessibility model, intervening opportunity model, Garin Lowry model, strategic land use transport model.

Unit 3: Traffic Impact of Land

Principles of traffic impact analysis; Land development attributes; Traffic generation rates of different land uses; Land development impact on traffic congestion on road segments, intersections and parking; Impact on public transportation, pedestrian traffic, and safety.

Unit 4: Transit Oriented Development (TOD)

Transit Oriented Development: Definition, concepts and key components; Principles of TOD; Planning norms and standards of TOD; Pre-requisites of TOD; Financing of TOD; Role of stakeholders; Case studies of TOD; Case Studies on Land use–Transport Integration; Best practices of Land use transport integration in India and abroad; Inter- disciplinary policy issues and public action for guiding land use transport integration; Corridor and emergence of small towns and villages.

Course Outcomes: Upon the completion of this course, the students will be able to

- to appreciate the interface between transport corridor and its impact on land use development at regional level and how it triggers other corridors such as industrial, investment, etc.
- to appreciate how to channelize the corridor development for orderly spatial development.

References:

1. Ministry of Housing and Urban Affairs (2017). National Transit Oriented Development (TOD) Policy, 2017. Government of India, New Delhi.
2. Prabir De and Kavita Iyengar (2014). Developing Economic Corridors in South Asia. Asian Development Bank, Manila.
3. United Nations Human Settlements Programme (2015). The Role of Transport and Transit Corridors in Fostering International Cooperation for Sustainable Development: Issues and Recommendations. UN- HABITAT, Nairobi.
4. Pokhrel Ramesh, Bertolini Luca and Brommelstroet te Marco (2023). How does transportation facilitate regional economic development? A heuristic Mapping of the literature. Elsevier, Amsterdam.
5. Luis Enrique Ramos-Santiago (2023). Enhancing station level Direct-Demand models with Multi-Scalar accessibility indicators. Elsevier, Amsterdam.
6. UN-OHRLLS (2020). Effective Transit Transport Corridor Development and Management: Report on Best Practices. Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States. New York.
7. Jiwan J. (2021). Regional Development and Planning. Rawat Publications, New Delhi.

Recommended Journals:

1. Hilal Yildirim Keser (2015). Importance of Transport Corridors in Regional Development: The Case of TRACECA. Sosyoekonomi
2. Raballand Gael, Jean-Francois Marteau, Charles Kunaka, Jean-Kizito Kabanguka and Oliver Hartmann(2008). Lessons of Corridor Performance Measurement. Published web: [https:// gtkp.comknowledge/lessons-of-corridor-performance-measurement/](https://gtkp.comknowledge/lessons-of-corridor-performance-measurement/)

Course Code	As per Institutional Policy
Nature of Course	Minor MURP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents:

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Quantitative and Qualitative Research and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.

2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO – 3B REGIONAL PLAN
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objective: The student will be enabled

- to understand plan preparation for integrated District(s) planning/metro region.
- to understand the sector interface, hierarchy of settlement planning, and local to district spatial budgeting along with fiscal budgeting interlinks.

Course Contents

Preparation of Regional Development Plan for District(s): integrate/converge sectors, settlements, and finances; resource flows, plan land use implementation as per the 74th CAA and 73rd CAA, URDFPI, RADFPI guidelines, Source of funding the plan with Integrating District Development and Village Development Plan spatially with phasing, project identification for steering future development, phasing and Evaluation Plan.

Course Outcomes: Upon the completion of this course, the students will be able

- to prepare the spatial plan for a district(s)/metro region, and spatial budgeting interface with district budget

Note: *The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.*

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) <i>To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester</i>
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of a region in District Town Planning Department/ District Collectorate/District Development Authority/Zilla Parishad/Block Development Office/Academics/NGOs/Central Ministries.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of regional planning, projects, governance system, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MURP - 41
Course Title	DEVELOPMENT FINANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the financing mechanisms of finances for urban and regional development including the Center-State-Local Self Governance fiscal arrangements through Constitution (SFC, CFC, tied and untied grants), through multi-lateral, bi-lateral funding, guarantees, debt equity, taxes and service charges

Course Contents

Unit 1: Overview of Development Finance

Development Finance: approaches, concepts, components, process, credits rating; Role of Improvement Trusts, Development Authorities, SEZs and Special Purpose Vehicles (SPV) in Equity Finance, Taxes, Fees, Development Charges, Urban Finance Management.

Unit 2: State and Municipal Finance

Central Finance Commission (CFC) and State Finance Commission (SFC): Constitution, Powers and Functions; Consolidated Fund (Central and State); Centrally Sponsored Schemes; Municipal Finance: Categorisation of Municipal Sources of Revenue, Internal vs. External Revenue, Capital vs. Revenue Receipt; Municipal Finance Assessment Framework; Reforms in Municipal Finance: Unit Area Method in Property Tax Calculation, Rationalisation of User Charges; Streamlining Municipal Tax Administration

Unit 3: Public Private Partnership (PPP)

Concept, need, preconditions for Partnerships; Advantages of Collaboration; Methods of Promoting Participation; Regulations and Administrative Procedures; Role of Government as Partner, Regulator and Enforcer; Principles of PPP: Contractual Framework, Selection of Service Provider, Payment Mechanism, Monitoring and Evaluation, Risk and Revenue Sharing; Regulatory Authority for PPP; Model Contract Agreement.

Unit 4: Innovative Methods of Financing Urban Development

Monetary Exaction: Betterment Levy, Impact Fee, External Development Charges and Vacant Land Development Tax; Land Exactions: TDR, Town Planning Scheme, Monetisation of Underutilised Public Assets, Valorisation Charges; External Finance: Debt Financing, PPP, Financial Intermediaries, Municipal Bond, Pooled Finance.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the development finance, its various forms and sources, and techniques to raise funds.
- to appreciate the constitutional provisions of fiscal transfers from centre to state and local self-government, formulas associated with it and its effectiveness.

References:

1. Ryan Roberta and Ronald Woods (2015). Decentralisation and Subsidiarity: Concepts and frameworks for emerging economies. Forum of Federations. Ottawa, Ontario.
2. Central Finance Commission (2021). XV Central Finance Commission. Government of India, New Delhi.
3. Participatory Research in Asia (PRIA) (2018). State Finance Commission Recommendations. PRIA, New Delhi.
4. NITI AAYOG (2023): National Multidimensional Poverty Index: A progress Review 2023. NITI AAYOG, Government of India, New Delhi.
5. Isabelle Joumard, Hermes Morgavi and Hugo Bourrousse (2017). Achieving strong and balanced regional development in India. Economics Department, Paris.
6. Statistical Office National (2020). Final Report of the Committee for Sub-National Accounts. Ministry of Statistics and Programme Implementation, Government of India.
7. NITI AAYOG (2023): National Multidimensional Poverty Index: A progress Review 2023. NITI AAYOG, Government of India, New Delhi.
8. Central Finance Commission (2021). XV Central Finance Commission. Government of India, New Delhi.
9. Abor Joshua Yindenaba, Charles Komla Delali Adjasi, Robert Lensink (2021). Contemporary Issues in Development Finance. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major MURP - 42
Course Title	LEGISLATION AND PROFESSIONAL PRACTICE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the interface between legislation and urban planning and to educate students regarding basic concept of law and Indian constitution and the requirements of various acts, laws, rules and regulations related to housing and urban planning.
- to understand the scope, nature and procedure of professional practice; prepare consultancy proposals and quote fees and charges for professional work in housing and spatial planning.

Course Contents

Unit 1: Concept of Legislation

Significance and Objectives of Legislation; Constitutional basis and provisions relating to land, its development and use; Overview of legal tools in various components of Urban Planning and Development.

Unit 2: Planning Legislation in India and Land Acquisition and Settlement Act

Evolution of Planning Legislation in India; Types and description of various Acts: Town and Country Planning Acts, Improvement Trust Act, Urban Planning and Development Authorities Act: objectives, contents, procedures for preparation and implementation of regional plans, master plans and town planning schemes; Various Acts related to urban governance; Land resources, environment protection, public participation in statutory process; Land Acquisition and Settlement Act, Town and Country Planning Act, Other Acts related to Infrastructure: NHAI, Port, Airport and Railways.

Unit 3: Professional Activities and Responsibilities

Aims and objectives of professional institutes and bodies in planning; Professional roles and responsibilities of planning consultants; Professional ethics; Responsibilities towards clients, fellow professionals and public; Scope of services for different projects.

Unit 4: Consultancy Agreements and Implementation

Consultancy agreements and safeguards; Fees and scales of professional charges; Negotiation, liability, code of conduct, arbitration.

Course Outcomes: Upon the completion of this course, the students will be able

- to comprehend the interaction between legislation and urban planning, including how legal frameworks influence urban development and planning processes.
- to acquire foundational knowledge of legal concepts, the Indian constitution, and specific acts, laws, rules, and regulations related to housing and urban planning.
- to identify the scope, nature, and procedural aspects of professional practice in housing and spatial planning.
- to develop skills to prepare detailed consultancy proposals, including project scopes, objectives, and methodologies.
- to appreciate to accurately quote fees and charges for professional services in housing and spatial planning, ensuring transparent and competitive pricing.

References:

1. Kulshrestha S. K. (2012), Urban and Regional Planning in India: A Handbook for Professional Practice. Saga Publications, New Delhi.
2. Naseem Mohammad (2011). Environmental Law in India. Kluwer Law International, Netherlands.
3. Institute of Town Planners, India. (2003). Memorandum Articles of Association and Byelaws. New Delhi.
4. Ministry of Housing and Urban Affairs (2024): 'The Constitution (74th Amendment Act, 1992). Government of India, New Delhi.
5. Ministry of Panchayati Raj (2024). Government of India, New Delhi.
6. Shah Uttam Chand (2023). Planning Legislation covering Urban & Regional Planning and Environmental Laws in India. Notion Press, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Minor MURP - 41
Course Title	PROJECT PLANNING AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand spatial data infrastructure through advanced GIS platform and to simulate planning preparation, manage/monitor and assess evaluation within a short time.

Course Contents

Unit 1: Introduction to Project Appraisal, Project Cycle and Stages of Appraisal

Relevance of Project in Metro urban region planning, Identification, project cycle, Urban Planning and project appraisal; Stages of Appraisals: Financial, Economic, Social, Institutional and Environmental appraisals; Sensitivity Analysis of each of appraisals.

Unit 2: Detailed Project Report (DPR)

Definition of DPR, content in DPR: step by step process; Project Background, Feasibility study approach: Pre-implementation stage, implementation stage, and post-implementation stage; Types of surveys to be carried out for DPR; Team mobilization for DPR making; Financial section of DPR: Fundamentals of audit, costing, and budgeting of urban planning related projects; Processes involved in financial planning including the preparation and analysis of budgets, cost estimation, and financial audits; The role of stakeholder contributions in project financing and management, and strategies for managing emergency risk funds.

Unit 3: Monitoring and Evaluation

Project Monitoring and Evaluation: Network analysis (CPM, PERT); Software for Project Appraisal and Monitoring and Evaluation; Types of Evaluation: Concurrent and Post Impact Evaluation.

Unit 4: DPR for a Utility project for a neighbourhood/precinct & DPR for Industrial townships/Large-scale Infrastructure Project

A case study of a neighborhood to prepare a step-by-step detailed project report for electricity, water supply and conservation including water treatment plant, rainwater harvesting, Sanitation; Solid Waste Management and policy frameworks using GIS; A case study on an existing planned industrial township or a large-scale regional project, infrastructure project; single sector vs mixed industries; Industrial corridor projects; The role of NITI Aayog, role of GIS in projects.

Course Outcomes:

- to interface the GIS skills to spatial planning to simulate, prepare, manage/monitor and evaluate spatial planning through the digital network system.

References:

1. Dasgupta Partha, Sen Amartya and Marglin Stephen (1972). Guidelines for Project Evaluation. UNIDO, Vienna.
2. Hansen R (1986). Guide to Practical Project Appraisal Social Benefit-Cost Analysis in Developing Countries. UNIDO, Vienna.

3. Heng-Kang Sang, Avebury (1995). Project evaluation: Techniques and practices for developing countries. University of California, USA.
4. IPE and Tamil Nadu Infrastructure Services Limited (2009). Project Appraisal Manual: Capacity Development of National Capital Region Planning Board (NCRPB) for Asian Development Bank. NCRPB, New Delhi.
5. Prasanna Chandra. (1995). Projects: Planning, analysis, selection, implementation and review. Mc Graw Hill Publications, New Delhi.
6. Kerzner Harold R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, New Jersey.
7. Albert Lester (2007). Project Management, Planning and Control. Butterworth Heineman Publications, England.
8. Dragan Z. Milosevic. (2003). Project Management Tool Box: Tools and Techniques for the Practicing Project Manager. John Wiley & Sons, Amazon Publishing house, New York.
9. Taliercio Robert and Eduardo Andres Estrada (2020). Best Practices in Project Appraisal and Selection: How Strong Infrastructure Governance Can End Waste in Public Investment. IMF, Washington DC.
10. Asian Development Bank (2024). Project Performance Evaluation Report for Secondary Cities Development Project. Manila.
11. Bansal Vijay (2023). Project Management: Planning and Scheduling Techniques. Taylor and Francis, London.
12. Kanabar Vijay and Jason Wong (2024). The AI Revolution in Project Management. Pearson Education, London.

Model Curriculum for Two-Year PG Programmes in Planning

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.2.: Two-Year M. Plan/ M. Tech (Urban Planning)

Programme Objectives

- To prepare students in the skills of analyzing the physical, social, cultural, economic and ecological dimensions of urban settlements.
- To comprehend the issues in cities/towns, and emerging tools to solve the current problems, plan and design for the current and future of metropolitan cities and towns. Along with a group of core courses common to all planning programmes, specializations are built around courses such as city and metropolitan planning, urban infrastructure, municipal finance, urban information system, GIS, community participation, disaster risk reduction and resilience, planning for heritage areas, urban development management and governance, project planning, policies and laws, professional practice and ethics.
- The programme includes studio exercises in plan preparation through live case studies related to comprehensive and micro level urban development issues, and problems related to various cities and towns in the country.

Programme Outcomes

- Well equip the students to prepare a Master Plan/City Development Plan/Metropolitan Regional Plan and can make the plan at various scales such as zones, neighbourhoods to layouts. They can be employed from Municipality/Municipal Corporations/Towns Panchayats, Metropolitan Development Authority for plan preparation, plan implementation, monitoring and evaluation.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MUP-21)	City and Metropolitan Planning	2	1	0	3
	Major (MUP-22)	Metropolitan Land Markets and Management	2	1	0	3
	Minor (MUP-21)	Metropolitan and Urban Development Policies	1	1	0	2
	Minor (MUP-22)	Transport and Land Use Planning	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Master Plan	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MUP-31)	Institutions and Governance	2	1	0	3
	Major (MUP-32)	Mega Programmes and Mega Projects	2	1	0	3
	Minor (MUP-31)	Project Planning and Management	1	1	0	2
	Minor (MUP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B Master Plan of a Metropolitan Region	0	0	16	8
Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester					Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MUP-41)	Planning Legislation and Professional Practice	2	1	0	3
	Major (MUP-42)	Community Planning and Capacity Building	2	1	0	3
	Minor (MUP-41)	Metropolitan Development Finance	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major MUP – 21
Course Title	CITY AND METROPOLITAN PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand urbanization across the world and how the metro cities and other towns are transforming and theories that are emerging in this field.
- to understand contemporary urban theories across the world and their impact on Indian cities.
- to understand the problems and concepts of urbanization in various metropolitan cities and tier two and other cities and towns (small and medium towns) in India.

Course Contents

Unit 1: Urban Structure and Growth Implications:

Growth of cities; cities as engine of growth; Urban sprawl; Land value, economic attributes of activity location, economic forces in urban development; Structure of City Regions, area of influence, Impact of technology on urban forms; Transportation and urban form; location characteristics and impact of urban settlements.

Unit 2: Theories of Development and Emerging Concepts

Theories of urban structure and land use- Centre place theory, urban realm model, core frame theory; New urbanism; Territorial Development Theory: Growth pole theory, urban bias critique, secondary cities and urban diffusion; Emerging Rural Urban Relationship models: urban rural linkage, expanding city, globalization and extended metropolitan region, Desakota model, Networked model; Territoriality of rural – urban interaction; Peri-urban Interface (PUI) case studies.

Unit 3: Planning Norms, Standards, Approaches and Techniques

Spatial standards for residential, industrial, commercial, institutional, transport, ecological spaces, recreational areas etc.; space standards for facility areas, utilities and networks; performance standards.; Approaches for preparation of urban development plans, Master Plans, Structure plans and Strategy Plan; Public Participation and plan implementation; technique of urban renewal and redevelopment; System approaches to planning; Threshold analysis, retail location and industrial location analysis; transport system analysis

Unit 4: Planning for Special Areas and Best Practices in Planning

Special area planning-definition, types, attributes, requirements, planning process; inner areas, peri- urban areas issues and planning approaches; smart city- concepts, elements, features, planning approaches and strategies, policy efforts in India; inclusive planning-concepts and components, essential dimension of inclusive planning; growth of informal sector, characteristics, linkages with formal sector, planning interventions, inclusive zoning, development and building regulation, slum improvement; Best practices of city and metropolitan in India and abroad, inter- disciplinary policy issues and public actions for guiding metropolitan development.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate urbanization and terminologies regarding metropolitan and other urban areas.
- to appreciate legislative structure for metropolitan planning and development.
- to analyze the nature, form and delineation of metropolitan cities and peri-urban areas in India.
- to have a global perspective regarding metropolitan planning and development strategies.

References:

1. Aggarwalla Astha. (2011). Agglomeration Economies and Productivity Growth in India. Indian Institute of Management, Ahmadabad.
2. BMRDA (2016). Bangalore Metropolitan Region Revised Structure plan 2031. BMRDA, Bangalore.
3. Board N. C.R. P. Regional Plan 2021. National Capital Region. Government of India, New Delhi.
4. Clark G. and T. Moonen (2014). Mumbai: India's Global City. Brookings Inst Pr., Massachusetts.
5. Glasson J. (1974). An Introduction to Regional Planning. Taylor and Francis ltd., London.
6. HMDA. (2013). Metropolitan Development Plan – 2031 for Hyderabad Metropolitan Development Region. HMDA, Hyderabad.
7. Jaidit Brar S. G. A. M. C. M. S. R. M. S. (2014). India's Economic Geography in 2025: States, Clusters and Cities. McKinsey and Company, Delhi.
8. KMDA. (2000). Perspective Planning for metropolitan Development, Kolkata. KMDA, Kolkata.
9. Ministry of Urban Development. (2014). Regional Planning Approach, URDPFI Vol. I and Vol.2. Government of India, New Delhi.
10. Wheeler S. (2009). Regions, Mega regions, and Sustainability. Regional Studies, Vol. 43.6, pp. 863-876, Routledge Informa Ltd, England.
11. Bhattacharya Shromoyee & Sujaya Rathi (2015). Re-conceptualizing Smart Cities: A reference framework for India. Niti Aayog, Government of India.
12. The World Bank (2015). World: Inclusive Cities Approach Paper. Report No. AUS8539. IBRD, The World Bank, Washington D.C.
13. Deuskar Chandan (2020). Informal Urbanization and Clientelism: Measuring the global relationship. Sage, London.
14. Mahadevia D. (2024). Urban Planning and its Discontents: Practice in Contemporary India. Taylor & Francis Books India Pvt. Ltd, London.
15. Keitel M.L. and Lukas Behrend (2023). The Topology of Planning Theories. Springer, Berlin.

Recommended Journals:

1. Jain S, J. Panda, and S. Kant. (2014). Possible Socio-scientific Issues of Land-use and Land-cover Change Impact and Associated Tools of Study with a Special Reference to Delhi-Mumbai Industrial Corridor Region. International Journal of earth and Atmospheric Sciences, Vol. 1, pp. 58-70.
2. Strategia A. (2015). Tools and Technologies for Planning the Development of Smart Cities. Journal of Urban Technologies, Vol. 22, No. 2, pp. 43-62.

Course Code	As per Institutional Policy
Nature of Course	Major MUP – 22
Course Title	METROPOLITAN LAND MARKETS AND MANAGEMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the students, the supply and demand for urban land, market analysis, and what kind of tools are there to manage the limited land resources. how to capture land value and use it for urban development will be equipped.

Course Contents

Unit 1: Introduction to Land Economics, Land Policy and Land Markets

Economic Principles of Land use, Concept of Rent and its application, Demand forecasting for land, factors affecting land supply and demand; interpretation of Revenue Maps (Cadastral maps).; Market Conditions: formal and informal, legal and illegal; Instruments of land policy and impact on markets: Planning instruments, market development instruments, financial development instruments, fiscal instruments, and other supportive instruments: Market by Government and Government by Markets;; Regulation, monopoly power and its use, private development; Rent-seeking and its impact on land supply, access to land by various segments of population, and PPP in land; Introduction to Resettlement & Rehabilitation (R&R).

Unit 2: Supply and Demand Side Management

Property Rights: ownership, user and exchange rights: Its implication on land supply; Land Development: Type, cost, methods of disposal; Corruption and land markets: Corruption, black money and land markets; Relation between land, share and gold markets.; Demand side Management: Income elasticity of land, business cycles and its impact on demand for land, externalities and internalities in land development and induced demand, economic growth and demand for land; Changes in tastes and preferences and its effect on type of land; Poor and their demand; Physical, fiscal, financial and legal incentives for inducing or restricting the demand for land; Mega investments and its effect on land. ; Regulation in Land Markets: Social justice and land distribution: public domain, social- democratic regulation, corporatist regulation, collective action of the state and regulation of its supply of land – overall impact of regulation on land prices: Master Plan, Zoning and other planning regulations and their impact on supply.

Unit 3: Land Management Techniques and Land Pricing

Land Management Techniques: Private land assembly, co-operatives in land development, FDI in land development, land pooling and plot reconstitution, Transfer of development rights, land sharing and land lease.; Land Pricing: Land valuation techniques, land pricing, subsidies, auctions; type of development: plotted, flatted system, and their effect on land pricing; Hedonistic pricing; land price behaviour; Constructing the land price index.

Unit 4: Land Utilization & Land Information System (LIS)

Types of land utilization and its relevance to planning; Land conversions and its regulation/facilitation in peri-urban areas; Land utilization analysis; Common property and its use, tenancy and ownership, holding size and its relevance, irrigated and non-irrigated and land values. Sources of information for land information; Land records in Rural areas (examples from Karnataka, Andhra, etc), transparency in land transaction, methods of publicizing land prices and

land price monitoring.

Course Outcomes: Upon the completion of this course, the students will be able

- to do market analysis and how the land value capture can be measured.

References:

1. P. Nicholas G. (2012). Real Estate Economics a Point-to-point Handbook. Routledge, London
2. Di Pasquale, Denise, and William Wheaton. (1995). Urban Economics and Real Estate Markets. Prentice Hall, New Jersey.
3. Ling D. C. & Wayne R. A. Real Estate Principles: A Value Approach. McGraw-Hill, New York.
4. Brett, L. Deborah, and Adrienne Schmitz. Real Estate Market Analysis: Methods and Case Studies. Urban Land Institute, Washington D.C.
5. Jacobus, Charles J. Real Estate Principles. Cengage Learning, Mason, OH.
6. Grossman Zachary, Jonathan Pincus, Shapiro Perry and Yengin Duygu (2018). Second-Best Mechanisms for Land Assembly and Hold-out Problems. The University of Adelaide, Australia.
7. Lall S.V., M. Freire, B. Yuen, R. Rajack and J.J. Helluin (2014). Urban Land Markets: Improving Land Management for Successful Urbanization. Springer, Berlin.
8. Mohanty K.P. (2021). Land Economics and Policy in Developing Countries. Sage Publications Pvt. Ltd., London.
9. Burman Anirudh (2024). Land Markets. Carnegie India, New Delhi.
10. Nagarajaiah K.S. (2022). Principle and Practice for Valuation of Land and Building. K S Nagarajaiah.

Course Code	As per Institutional Policy
Nature of Course	Minor MUP – 21
Course Title	METROPOLITAN AND URBAN DEVELOPMENT POLICIES
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: *The student will be enabled*

- to understand the urbanization process and urban policy for industrial cities, special areas, IDSMT, urban growth centres, national urban policy, master plan policy, smart cities, town planning schemes, current economic engines, etc.
- to understand the preparation, implementation monitoring and evaluation process of urban policies; who are the stakeholders are and how they lobby the policy decisions.

Course Contents

Unit 1: Public Policy and Planning

Nature of public problems, planning as a public issue, policy process, limitations in public and private Sector; Strategic policy planning; Overview of policy analysis: scope, significance and contextual perspectives, public policy delivery agencies and Implementers; Public policy implementation: Gaps and problems.

Unit 2: Policy Making Process

Policy Process: problem definition, policy objectives and options, policy implementation, policy evaluation and maintenance; Policy making approaches: Power approaches, Institutional approaches, Strategic Planning, Rational approach and Simon's Rationality Model; Decision-making process and techniques; Policy monitoring: approaches and techniques; Role of non-officials in policy making; Intergovernmental relations and public policy issues; Public policy implementation: Approaches and models; Inter-organizational relations and public policy implementation.

Unit 3: Policy Scenario Building and Evaluation

Techniques and approaches to policy building; Policy evaluation Indicators; Policy scenarios formulation; Public policy evaluation: role, process and criteria; Policy implementation; performance evaluation and impact.

Unit 4: Urban Development Policies & Emerging Policy

National Urbanization Commission Policy (NUC), National Urban Housing & Habitat Policy, Master Plan Policy, Programmes and Policies: IDSMT, Smart City, AMRUT, JNNURM, HRIDAY, etc. National Policy for Urban Street Vendors, National Environmental Policy, National Urban Transport Policy, National Water Policy, National Sanitation Policy, National Policy on Energy.; Policies to promote efficient urban spatial development; development of eco-friendly neighborhoods; Flexible FSI in urban design and planning; Transport and land use integration; Integrated spatial and economic planning; Inclusionary zoning regulations; Renewal of neglected historic districts and derelict inner city areas; Integrating environment in urban planning and development; Green urban economy approach; Environment and social opportunities of densities; Green urban infrastructure; Green urban governance; Best practices of urban development and planning policies: approach and impacts; Procedure and inter-disciplinary issues related to policies.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the historic complexities of urban policy formulation, stakeholders and their lobbying, how the policies are implemented, which institution(s) and how they implement it will be aware of these.
- to appreciate various programmes and policy space and their levels in urban development.

References:

1. Walton Horace M. (2019). *Metropolitan Policies and Plans*. Forgotten Books, London.
2. Mohanty Prasanna K. (2015). *Cities and Public Policy: An Urban Agenda for India*. SAGE Publications, New Delhi.
3. Walton Horace M. (2024). *Metropolitan Policies and Plans*. Forgotten Books, London.
4. Matani Lohit (2021). *Public Administration and Public Policy*. OakBridge Publishing, Gurugram.
5. Jones Andrew and Patrik Ström (2024). *Research Handbook on the Green Economy*. Edward Elgar Publishing, Basel.

Course Code	As per Institutional Policy
Nature of Course	Minor MUP – 22
Course Title	TRANSPORT AND LAND USE PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the interface between land use and transportation and their reciprocator affects.
- to understand the new tools such as transit-oriented developments, local area plans in and around metro/rail/road corridors and its impact on urban space.

Course Contents

Unit 1: Importance of Land Use-Transport Integration

Land use and mobility patterns in cities, implications of land use patterns on transport and mobility, land use and transport decisions, need for sustainable development and sustainable transport; Need and benefit of land use transport integration, case cities of land use- transport integration.; Land use transport integration: definition and concept, land use transport cycle, importance of accessibility, factors affecting land use transport integration, tools and land use – Transport Integration, key elements of integration, Integration land use and transport in the planning process, Institutional integration and legal mechanism.

Unit 2: Land Use-Transport Model

Components of Land use transport model, accessibility: concept, measures and quantification; Types of land use transport model: Density saturation gradient method, Hansen's accessibility model, intervening opportunity model, Grain Lowry model; Strategic land use transport model

Unit 3: Land Use Techniques and Transit Oriented Development (TOD)

Local Area Plan, TPS; Transit Oriented Development: Definition, concepts and key components, principals of TOD, planning norms and standards of TOD, pre-requisites of TOD, financing TOD, role of stakeholder, case studies of TOD; Land Value Capture.

Unit 4: Case Studies on Land use-Transport Integration

Best practices of Land use transport integration in India and abroad, inter-disciplinary policy issues and public action for guiding land use transport integration.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the influence of transport on land use in a city.
- to plan the transport corridor and capture its land value addition for infrastructure and other development in those areas.

References:

1. DUAP (2001). Integrating land use and transport: improving transport choice - guidelines for planning and development. NSW Department of Urban Affairs and Planning, New South Wales.
2. Kadiyali, L. R. (2014) Traffic engineering and transport planning. Khanna Publishers, New Delhi.
3. Lynch, Kevin. (1981) Access from good city form. The MIT Press, Cambridge.
4. Mitchell R. B. and C. Rapkin. (1954). Urban traffic: a function of land use. Columbia University Press, New York.
5. Rodrigue Jean-Paul, Claude Comtois and Brian Slack. (2006). The geography of transport

- systems. Routledge, New York.
6. *Transit-oriented development (TOD) guidebook 2006*. Neighborhood Planning and Zoning Department. City of Austin.
 7. Tumlin, J. (2012) *Sustainable transportation planning: tools for creating vibrant, healthy and resilient communities*. John Wiley & Sons, New Jersey.
 8. MOST. (2006). *Urban Transport Policy*. Ministry of Surface Transport. Government of India, New Delhi.
 9. MOST. (2014) *Urban Transport Policy (Proposed)*. Ministry of Surface Transport. Government of India, New Delhi.
 10. UTTIPEC. (2012) *Transit Oriented Development: Policy, Norms and Guidelines*. Delhi Development Authority, New Delhi.
 11. Vuchic V. R. (2005). *Urban transit: operations, planning & economics*. John Wiley & Sons, New Jersey.
 12. Schoeman C. B. (2015). *Land use management and transportation planning*. WIT Press, Southampton.
 13. Cao X. J., Chuan Ding, and Jiawen Yang. (2022). *Urban Transport and Land Use Planning: A Synthesis of Global Knowledge*. Academic Press Inc., Massachusetts.
 14. Asian Development Bank. (2022). *Realizing India's potential for transit-oriented development and land value capture a qualitative and quantitative approach*. Asian Development Bank, Manila, Philippines.
 15. João de Abreu e Silva (2023). *Handbook on Transport and Land Use: A Holistic Approach in an Age of Rapid Technological Change*. Edward Elgar Publishing, Basel.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 21
Course Title	PLANNING STUDIO – 21 QUANTITATIVE METHODS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand about the statistical tools for the analysis of current conditions and future projections and for modeling the future scenario.

Course Contents

Unit 1: Introduction to Statistics, Organizing Surveys & Data Collections

Statistics, Functions of Statistics, Applications and Limitations of Statistics; Organizing a statistical survey: Techniques of data collection, choice of frame, Degree of accuracy desired, Design of forms, field investigators; collection of Data: Primary and Secondary Data, Drafting the questionnaire, Sources of Secondary data, Editing primary and secondary data.; Census of India tables and its usage in planning; CSO/NSSO/NFHS data and its usage in planning; linking Census of India to NSSO tables.

Unit 2: Sampling, Sample Designs and Classification & Tabulation of Data

Census and Sample Method; Theoretical basis of sampling, Methods of sampling, Size of sample; Classification and Tabulation of data: Meaning and classification of objectives, types of classification, Frequency Distribution; Tabulation of Data: Difference between classification and tabulation, types of tables; soft wares for tabulation.

Unit 3: Measures of Central Value, Dispersion & Skewness, Moments, Kurtosis

Types of Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, General limitations of average. Measures of Dispersion: Measuring Variation: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variations, Chebyshev's theorem, Lorenz curve. Difference between dispersion and skewness, measures of skewness, Moments, Sheppard's correction; Kurtosis.

Unit 4: Correlations and Regressions

Correlation and Causation; types of correlations, Partial and multiple correlation, scattered diagram method, Graphic method; Kar Pearson's coefficient of correlation; Probable Error; Coefficient of Determination, Rank Correlation, Concurrent Deviation method. Regression: Regression lines, Regression Equation; Regression equations in case of correlation table, Standard Error of Estimate. Time Series: Measurement of Trend, Seasonal, cyclical and irregular variations. Introduction to Interpolation and Extrapolation.

Course Outcomes: Upon the completion of this course, the students will be able

- to acquire practical skills in analysing and visualization of data.
- to trained to carry out projections and scenario building.

References:

1. Gupta S. P. (2024). Statistical Methods. Sultan and Chand, Delhi.
2. E. Reid and Keunhyunk Park. (2020). Basic Quantitative Research Methods for Urban Planners. Routledge, London.
3. Anusha Illukkumbura (2020). Introduction to Regression Analysis. Amazon Digital Services LLP.
4. Lohr Sharon L. (2022). Sampling Design and Analysis. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 21
Course Title	PLANNING STUDIO – 21 MASTER PLAN
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand to prepare a Master Plan of a town or a city or a metropolis.

Course Content

The purpose of the study is to prepare a master plan of that town which aims at improving the urban environment. Students shall be required to prepare master plan for the urban area studied in “Study of Town”. The scope of master plan preparation will includes working out the detailed requirements; formulation goals, objectives and policies; planning considerations; conceptual framework; planning proposals including zoning and phasing; and implementation strategy covering organizational and financial aspects.

Course Outcomes: Upon the completion of this course, the students will be able

- to analyze the existing baseline situations of the city and identify sectorial issues and challenges of development.
- to carry out forecast, build future scenarios for Master Plan / City Region Plan and detailed out plan proposals.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MUP – 31
Course Title	INSTITUTIONS AND GOVERNANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand complexity of urban institutions and strategies to converge them for spatial development.
- to understand governance system i.e. which institutions implement and monitor which sector and at what level?

Course Contents

Unit 1: Introduction to Institutions in Urban/Metro Development

Types of Institutions in Urban/Metro Development and their role in spatial development. Power, finance, and decision making process at all levels: Ward to Metro Region. Links to State level authorities. Role of Government, Private and Non-Government Organisations in Urban/Metro Regional Development. Legal Institutions, Democratic Institutions, and Bi-Multi lateral institutions. Divergence and Convergence.

Unit 2: Urban Governance, Institutions, Organizations & Participation process

Difference between Government and Governance; Urban Governance- Definition, concepts and components; hierarchy and structure, form of governance; Institutional and organizational framework, existing institutional and organizational setting for urban management in India; distribution of responsibilities; special purpose vehicles (SPV's) in the urban sector; significance of organizational framework; Difference between institutions and organizations.; Stakeholder participation- roles and responsibilities, access to governments; Citizen Participation in urban development and management; Inter-organisational relations and coordination at local level; role of digital engagement and social media.

Unit 3: Urban Local Governance and its Reforms

Urban local governance- type, organization, power, functions, resource, state supervision control and their working; improvement trust- organizations, scope of their powers and functions and their working; City development authorities: organizations, scope of their power and functions, resources, and their working; administrative reforms in local governance; Organisational Restructuring of Local Governments; capacity building; NGO's.

Unit 4: Urban Redevelopment

Strategies and evaluation of redevelopment policy and institutions related to redevelopment; role of public sector agencies in redevelopment; Area based redevelopment Initiatives; Property led redevelopment policies; Investment and Funding of Urban Redevelopment Schemes; Role of private sector; Development Potential and Pricing; Plot reconstitution; Renewal through Housing and Mixed Use Development; Community Participation; Contracts/Agreement/Arrangements in Redevelopment – Institutional Arrangements.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the institutional complexities in urban area, and how to handle them for urban development.
- to appreciate horizontal and vertical hierarchies in planning, scales of development and

their convergence to the plans for city/region development.

References:

1. Klijn E.H. and J.F.M. Koppenjan (2012). Governance network theory: past, present and future, Policy and Politics. Department of Public Administration, Erasmus University, Rotterdam.
2. Le Galès, P. (2001). Urban governance and policy networks: on the boundedness of policy networks. A French case. Springer, Berlin.
3. Osborne S.P. (2010). The new public governance: emerging perspectives on the theory and practice of public governance. Routledge, London.
4. Rhodes R.A.W. (1997). Understanding Governance. Open University Press, Buckingham.
5. Rogers D.L. and D.A. Whetten (1982). Inter-organizational Coordination: Theory, Research, and Implementation. Iowa State University Press, Ames.
6. Teisman G.R., A. van Buuren and L. Gerrits (2008). Managing complex governance networks. Routledge, London.
7. Singh Sukhpal, Jyotsna Jha, A. Indira and A.V. Arunkumar. (2024). Institutions and Public Policy for India's Sustainable Development. Routledge, London.
8. Rydin Y., Robert Beauregard, Marco Cremaschi and Laura Lieto (2022). Regulation and Planning: Practices, Institutions, Agency. Routledge, London.
9. Kapucu Naim (2020). Network Governance: Concepts, Theories, and Applications. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major MUP – 32
Course Title	MEGA PROGRAMMES AND MEGA PROJECTS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the drivers of urban development, urban mega programmes and mega projects across sectors.
- to gain knowledge about Global and Indian Case studies in various cities to showcase their success and failure of projects for urban development.
- to understand the complexities of mega programmes and projects in urban context.

Course Contents

Unit 1: Mega Programmes and Projects Links

Use of Programmes and Projects in Urban Development; Definition of Mega Programmes, Programmes Vs. Projects, Links between Programmes and Projects. Sources and Formulation of Programmes and its process. Examples of Mega Programmes in India(JNNURM, SMART CITIES, MEGA CITY, ETC) and abroad & their role in urban development.; Mega project definition, concepts and subject matter; classification of mega projects; investment based, activity based, Relevance of Mega Projects in Urban Planning, Status of Mega projects in India, Laws and Theories behind Mega Projects; political symbolism, social conflict theory, Types and nature of mega projects; transportation based, industrial, commercial, residential, energy, others, Trans-national mega projects.

Unit 2: Mega Projects

Related Concepts: SEZ, Free Trade Zones, Mega projects and urban development and regional development; Cycles in mega project development; Trendsetters, promoters, surge and declines, waves of mega project innovations; Bilbao effect; Impacts of mega projects and pitfalls; From Mega structures to Megalopolis; City transformations through mega projects; Guidelines for mega projects at national level; Critical Infrastructure requirements for mega projects; Theoretical ideologies towards mega project infrastructure provisions.

Unit 3: Mega Projects and Typology of Projects

Mega projects as instruments of urban planning and development; Mega projects as instrument of social and environmental changes; Environmental and land acquisition issues in mega projects; Mega project development policies for multiplexes and hotels, Mega industrial parks, Agriculture mega projects, Mega housing projects, Super mega projects, Special economic zone, Dry ports and free ports, Theme parks; Private and community sector participation in mega projects; Challenges and potentials of mega projects; Project planning & development in urban & regional context.

Unit 4: Mega Projects in India and Abroad

Finance for mega projects; Private Sector participation in mega projects; Mega projects and environment implications; Mega projects and displacements issues; National Rehabilitation and resettlement policy 2007 for project affected families; National/international Case studies of mega projects: Dams, Airports, Ports, SEZ, Amusement parks, Commercial developments, Railway Station Redevelopment, Slum Redevelopment, etc.; Problems, prospects and policy reforms for developmental displacements in India; Rehabilitation measures post displacement.

Case studies of displacement and rehabilitation (Sardar Sarovar Dam, Statue of Unity, Hangzhou, China).

Course Outcomes: *Upon the completion of this course, the students will be able*

- *to appreciate the drivers of urban development, and how complexities exist for programmes and projects for urban development and how to handle them.*
- *to appreciate the success and failure in projects and how to remedy them in future.*

References:

1. Goodman Alvin and Makrand Hastak (2006). Infrastructure Planning Handbook: Planning, Engineering & Economics. McGraw Hill Publications, Uttar Pradesh.
2. Ganesan S. (2001). Infrastructure Development and Financing. Kanishka Publishing, New Delhi.
3. Hugo P. (2008). Decision making on Mega projects, cost/benefit analysis, planning and innovation. Elgar publication, London.
4. Kennedy Loraine (2014). Megaprojects and urban development in cities of the South: In Chance to Sustain, European Union Project Report. Published by EU.
5. Kris O. (2001). Globalization and urban change, capital, culture and Asia Pacific Megaprojects. Oxford University Press, Oxford.
6. Moss Timothy (2000). Marvin Urban Infrastructure in Transition: Networks, Buildings, Plans. Earthscan Publisher, New Jersey.
7. Virendra Proag. (2021). Infrastructure Planning and Management: An Integrated Approach. Springer publications, Berlin.
8. Labbé Danielle (2020). Handbook of Megacities and Megacity-Regions. Edward Elgar Publishing, Basel.
9. IRS Goyal C.P., O.P. Arora, Mayank Sharma and Amar Kumar Sinha (2023). Special Economic Zones (SEZ), EOUs/EHTPs & STPs. Commercial Law Publishers (India) Pvt. Ltd., New Delhi.
10. Cantoni Franca, Laura Corazza, Ernesto De Nito, Primiano Di Nauta and Edoardo Favari (2023). Complexity and Sustainability in Megaprojects. Springer Nature, Berlin.

Recommended Journals

1. Flyvbjerg Bent. (2014). What You Should Know About Megaprojects and Why: An Overview, Project Management Journal, April/May 2014.
2. Kennedy Loraine (2015). The politics and changing paradigm of mega project development in metropolitan cities. The Habitat International, Volume 45, Part 3, January 2015, Pages 163-168.

Course Code	As per Institutional Policy
Nature of Course	Minor MUP – 31
Course Title	PROJECT PLANNING AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: *The student will be enabled*

- to understand different techniques of project formulation, monitoring and evaluation of urban and regional projects.

Course Contents

Unit 1: Introduction to Detailed Project Appraisal, Project Cycle and Stages of Appraisal

Relevance of Project in Metro urban region planning, Identification, project cycle, Urban Planning and project appraisal; Stages of Appraisals: Financial, Economic, Social, Institutional and Environmental appraisals; Sensitivity Analysis of each of these appraisals; Use of Software for Project Appraisal.

Unit 2: Detailed Project Report (DPR)

Definition of DPR, content in DPR: step by step process, Project Background, Feasibility study approach: (Pre-implementation stage, implementation stage, and post-implementation stage, types of surveys to be carried out for DPR, team mobilization for DPR making; Financial section of DPR: Fundamentals of audit, costing, and budgeting of urban planning related projects. Processes involved in financial planning, including the preparation and analysis of budgets, cost estimation, and financial audits; The role of stakeholder contributions in project financing and management, and strategies for managing emergency risk funds.

Unit 3: Detailed Project Report (DPR) for Utility Project for a neighbourhood /precinct/Industrial Township/Infrastructure Project

A case study of a neighbourhood to prepare a step-by-step detailed project report for electricity, water supply and conservation including water treatment plant, rainwater harvesting, Sanitation; Solid Waste Management and policy frameworks using GIS.

A case study on an existing planned industrial township or a large-scaler regional projects, infrastructure project, single sector vs mixed industries, Industrial corridor projects, the role of NITI Aayog, role of GIS in projects.

Unit 4: Project Monitoring and Evaluation

Project Monitoring and Evaluation: Network analysis (CPM, PERT), Software for Project Monitoring and Evaluation. Types of Evaluation: Concurrent and Post: Impact Evaluation. Report Skills for Project Evaluation and Project Closures.

Course Outcomes: *Upon the completion of this course, the students will be able*

- to formulate project proposals with various stages, implementation, monitoring, and evaluating urban and regional planning projects at various scales.
- to demonstrate skills for the preparation of detailed reports of planning and development projects.

References:

1. Dasgupta Partha, Sen Amartya and Marglin Stephen (1972). Guidelines for Project Evaluation. UNIDO, Vienna.
2. Hansen R (1986). Guide to Practical Project Appraisal Social Benefit-Cost Analysis in Developing Countries. UNIDO, Vienna.
3. Heng-Kang Sang, Avebury (1995). Project evaluation: Techniques and practices for developing countries. University of California, USA.
4. IPE and Tamil Nadu Infrastructure Services Limited (2009). Project Appraisal Manual: Capacity Development of National Capital Region Planning Board (NCRPB) for Asian Development Bank. NCRPB, New Delhi.
5. Prasanna Chandra. (1995). Projects: Planning, analysis, selection, implementation and review. Mc Graw Hill Publications, New Delhi.
6. Kerzner Harold R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, New Jersey.
7. Albert Lester (2007). Project Management, Planning and Control. Butterworth Heineman Publications, England.
8. Dragan Z. Milosevic. (2003). Project Management Tool Box: Tools and Techniques for the Practicing Project Manager. John Wiley & Sons, Amazon Publishing house, New York.
9. Taliercio Robert and Eduardo Andres Estrada (2020). Best Practices in Project Appraisal and Selection: How Strong Infrastructure Governance Can End Waste in Public Investment. IMF, Washington DC.
10. Asian Development Bank (2024). Project Performance Evaluation Report for Secondary Cities Development Project. Manila.
11. Bansal Vijay (2023). Project Management: Planning and Scheduling Techniques. Taylor and Francis, London.
12. Kanabar Vijay and Jason Wong (2024). The AI Revolution in Project Management. Pearson Education, London.

Course Code	As per Institutional Policy
Nature of Course	Minor MUP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Quantitative and Qualitative Research and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.

2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 31
Course Title	PLANNING STUDIO – 3B MASTER PLAN FOR METRO REGION
No. of Credits	8 (L: 0; T:1; U: 14)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand to prepare a Master Plan of a metropolitan region.

Course Contents

Preparation of Master Plan for Metropolitan Region: interlinks between core and periphery, sectoral links, resource flows, land use plan implementation, Source of funding the plan, project identification for steering future development, phasing, Evaluation Plan, and spatial budgeting.

Course Outcome: Upon the completion of this course, the students will be able

- to analyse the existing baseline situations of the metropolitan region and identify sectorial issues and challenges of development.
- to carry out forecast, build future scenarios for Metropolitan Region Plan and detail out the plan proposals.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MUP – 41
Course Title	PLANNING LEGISLATION AND PROFESSIONAL PRACTICE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand, the interface between legislation and urban planning and to educate students regarding basic concept of law and Indian constitution and the requirements of various acts, laws, rules and regulations related to housing and urban planning.
- to understand the scope, nature and procedure of professional practice; prepare consultancy proposals and quote fees and charges for professional work in housing and spatial planning.

Course Contents

Unit 1: Concept of Legislation

Significance and Objectives of Legislation; Constitutional basis and provisions relating to land, its development and use; Overview of legal tools in various components of Urban Planning & Development.

Unit 2: Planning Legislation in India and Land Acquisition and Settlement Act

Evolution of Planning Legislation in India; Types and description of various Acts- Town and Country Planning Acts, Improvement Trust Act, Urban Planning and Development Authorities Act- objectives, contents, procedures for preparation and implementation of regional plans, master plans and town planning schemes; Various Acts related to urban governance; land resources, environment protection, public participation in statutory process.; Land Acquisition and Settlement Act, Town and Country Planning Act, Other Acts related to Infrastructure – example:- NHAI, Port, Airport and Railways.

Unit 3: Professional Activities and Responsibilities

Aims and objectives of professional institutes and bodies in planning; professional roles and responsibilities of planning consultants; professional ethics; responsibilities towards clients, fellow professionals and public; Scope of services for different projects.

Unit 4: Consultancy Agreements and Implementation

Consultancy agreements and safeguards; Fees and scales of professional charges; negotiation, liability, code of conduct, arbitration.

Course Outcomes: Upon the completion of this course, the students will be able

- to comprehend the interaction between legislation and urban planning, including how legal frameworks influence urban development and planning processes.
- to acquire foundational knowledge of legal concepts, the Indian constitution, and specific acts, laws, rules, and regulations related to housing and urban planning.
- to identify the scope, nature, and procedural aspects of professional practice in housing and spatial planning.
- to develop skills to prepare detailed consultancy proposals, including project scopes, objectives, and methodologies.
- to appreciate to accurately quote fees and charges for professional services in housing and spatial planning, ensuring transparent and competitive pricing.

References:

1. Kulshrestha S. K. (2012), Urban and Regional Planning in India: A Handbook for Professional Practice. Saga Publications, New Delhi.
2. Naseem Mohammad (2011). Environmental Law in India. Kluwer Law International, Netherlands.
3. Institute of Town Planners, India. (2003). Memorandum Articles of Association and Byelaws. New Delhi.
4. Ministry of Housing and Urban Affairs (2024): 'The Constitution (74th Amendment Act, 1992). Government of India, New Delhi.
5. Ministry of Panchayati Raj (2024). Government of India, New Delhi.
6. Shah Uttam Chand (2023). Planning Legislation covering Urban & Regional Planning and Environmental Laws in India. Notion Press, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Major MUP – 42
Course Title	COMMUNITY PLANNING AND CAPACITY BUILDING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand how to involve the citizens for city planning from ward to metropolitan level through community involvement.
- to understand the capacity building programmes from community to various institutions (formal and informal) for plan preparations, implementation, monitor and evaluate the planned development.

Course Contents

Unit 1: Overview of Communities

Overview of communities: definition, type, attributes, activity patterns, locational patterns; socio- cultural aspects; community needs and spatial requirements; socio-economic implication.

Unit 2: Principles of Community Planning, Tools and Techniques

Community planning- Principles, approaches and key considerations; spatial-socio-economic linkages; inclusion and quality of life; neighborhood planning; local area planning. Participatory Learning (PLA) tools: Mapping local context and problem identification, Focus Group Discussions; Audit of communities and its facilities; rapid assessment of community needs and planning intervention

Unit 3: Role of Community Participation and Participation Process

Participatory process in housing and community development; Community participation-community involvement, community action; role of CBOs, NGOs, SHGs, etc.; Participatory approaches, Typology of participation, Key principles of applying participatory methods and tools, Participatory attitudes and behavior, Teamwork skills in the context of participation, PLA/PID Tools, Participation as a process, Participatory Monitoring and Evaluation, Beneficiary Assessment, social assessment, & stakeholder analysis.

Unit 4: Case Studies on Community Participation

Detailed cases of community participation in areas of provision of housing/shelter, electricity, water supply, sanitation, solid waste disposal, transport, social infrastructure: health, education and cultural facilities; economic upliftment, resource mobilisation; maintenance and management of community assets

Course Outcome: Upon the completion of this course, the students will be able

- to equip with knowledge of community planning process, its tools to interact and how to use them in planning process.
- to make capacity development programme for different sectors, hierarchies of institutions (formal and informal) and to assess what kind of capacity is required at what level.

References:

1. Hardoy J. and D. Satterthwaite. (1989). Squatter Citizen. Earth scan Publications, London.
2. Roy-Rubzen M.F. AND John Burgess. (2016). Human Development and Capacity Building. Routledge, London.
3. Kelly Staphanie B. (2020). Community Planning. Rowman and Littlefield, Maryland.
4. Gilchrist A. (2021). Community Development: Principles and Practice. Cambridge University Press, Cambridge.
5. Singh M.K. (2022). Community Participation and Civic Engagement in the Digital Era: Localizing Sustainable Development. Emerald Publishing, Bingley.

Course Code	As per Institutional Policy
Nature of Course	Minor MUP – 41
Course Title	METROPOLITAN DEVELOPMENT FINANCE
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: *The student will be enabled*

- to understand about financing mechanisms of urban development projects and how to sustain and generate finances for the future urban development.
- *this course will also educate the students with the knowledge of Central/State/Local Self Government fiscal transfers for urban development and what kind of conditionalities exists for urban development and projects.*

Course Contents

Unit 1: Overview of Development Finance

Development Finance- approaches, concepts, components, process, credits rating; Role of Improvement Trusts, Development Authorities, SEZs and Special Purpose Vehicles (SPV) in Equity Finance, Taxes, Fees, Development Charges, Urban Finance Management.

Unit 2: State and Municipal Finance

Central Finance Commission (CFC) and State Finance Commission (SFC)- Constitution, Powers and Functions; Consolidated Fund (Central and State); Centrally Sponsored Schemes; Municipal Finance- Categorisation of Municipal Sources of Revenue, Internal Vs. External Revenue, Capital Vs. Revenue Receipt; Municipal Finance Assessment Framework; Reforms in Municipal Finance- Unit Area Method in Property Tax Calculation, Rationalisation of User Charges; Streamlining Municipal Tax Administration

Unit 3: Public Private Partnership (PPP)

Concept, need, preconditions for Partnerships; Advantages of Collaboration, Methods of Promoting Participation, Regulations and Administrative Procedures; Role of Government as Partner, Regulator and Enforcer; Principles of PPP- Contractual Framework, Selection of Service Provider, Payment Mechanism, Monitoring and Evaluation, Risk and Revenue Sharing; Regulatory Authority for PPP; Model Contract Agreement.

Unit 4: Innovative Methods of Financing Urban Development

Monetary Exaction- Betterment Levy, Impact Fee, External Development Charges and Vacant Land Development Tax; Land Value Capture - TDR, Town Planning Scheme, Monetisation of Under utilised Public Assets; Valorisation Charges; External Finance- Debt Financing, PPP, Financial Intermediaries, Municipal Bond, Pooled Finance.

Course Outcome: *Upon the completion of this course, the students would be able:*

- *to demonstrate knowledge of development finance, its various forms and sources, and techniques to raise funds.*

References:

1. Ryan Roberta and Ronald Woods (2015). Decentralisation and Subsidiarity: Concepts and frameworks for emerging economies. Forum of Federations. Ottawa, Ontario.
2. Participatory Research in Asia (PRIA) (2018). State Finance Commission Recommendations. PRIA, New Delhi.

3. Isabelle Joumard, Hermes Morgavi and Hugo Bourrousse (2017). Achieving strong and balanced regional development in India. Economics Department, Paris.
4. Statistical Office National (2020). Final Report of the Committee for Sub-National Accounts. Ministry of Statistics and Programme Implementation, Government of India.
5. NITI AAYOG (2023): National Multidimensional Poverty Index: A progress Review 2023. NITI AAYOG, Government of India, New Delhi.
6. Central Finance Commission (2021). XV Central Finance Commission. Government of India, New Delhi.
7. Abor Joshua Yindenaba, Charles Komla Delali Adjasi, Robert Lensink (2021). Contemporary Issues in Development Finance. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.3.: Two-Year M. Plan/ M. Tech (Regional Planning)

Programme Objective

- This programme is to equip the students to educate the regional planning is being carried out in India currently and to prepare the regional plan. Various spatial scales, sectors and levels are taught from Village to Region Level through studio exercises in this course.

Programme Outcome

- After completing this course, a student will be able to prepare a spatial plan from village to region level. They can get employed from District Development Authority to Regional level in Government, Private Sector, NGOs, and other bilateral and multilateral organizations.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-21)	City and Metropolitan Planning	2	1	0	3
	Major (MRP-22)	Regional Planning	2	1	0	3
	Minor (MRP-21)	Real Estate Market and Land Management	1	1	0	2
	Minor (MRP-22)	Urban & Regional Infrastructure	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 2A Quantitative Methods	0	0	4	2
		Planning Studio – 2B Village, Cluster and Block Planning	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-31)	Institutions and Governance	2	1	0	3
	Major (MRP-32)	District Planning and Rural Development	2	1	0	3
	Minor (MRP-31)	Transport Corridors and Regional Development	1	1	0	2
	Minor (MRP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 3A Thesis Preliminaries	0	2	0	2
		Planning Studio – 3B Regional Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MRP-41)	Development Finance	2	1	0	3
	Major (MRP-42)	Legislation and Professional Practice	2	1	0	3
	Minor (MRP-41)	Project Planning and Management	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major MRP – 21
Course Title	CITY AND METROPOLITAN PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the problems and concepts of urbanization in various metropolitan cities as well as area of influence of metropolis with understanding of global metropolis as well as Indian cities.

Course Contents

Unit 1: Theories of Development and Urban Structure

Growth of cities; cities as engine of growth; urban sprawl; land value, economic attributes of activity location, economic forces in urban development; Structure of City Regions, area of influence, Impact of technology on urban forms; Transportation and urban form; location characteristics and impact of urban settlements.; Theories of urban structure and land use: Centre place theory, urban realm model; New urbanism; Critical Minimum theory, backwash effects, Big Push theory and Rostow's Stages of Development, Territorial Development Theory: Growth pole theory, urban bias critique, secondary cities and urban diffusion; System approach to planning; Threshold analysis, retail location and industrial location analysis; transport system analysis; Desakota model, Emerging Rural Urban Relationship models, globalization, spatial economic geography models, extended metropolitan region, Networked model; Peri-urban Interface (PUI) case studies.

Unit 2: Planning Norms and Standards

Land use standards for residential, industrial, commercial, institutional, transport, ecological spaces, recreational areas etc.; space standards based on population for facility areas, utilities, and networks; performance standards. URDFPI, RADFPI, Hill Area development Guidelines, standards. and other model guidelines by State and Central development Ministries (Central) and States. Building By-Laws, FSI and Formed based norms and standards.

Unit 3: Plan Preparation Approaches and Techniques

Approaches for preparation of Urban development plans, Master Plans, Structure plans and Strategy Plan; Public Participation and Plan Implementation; Zonal and Local Area Plan, Techniques of urban renewal and redevelopment; Special area planning- definition, types, attributes, requirements, planning process; inner areas, peri-urban areas issues and planning approaches; Smart City: Concepts, Elements, Features, planning approach and strategies, policy efforts in India; Inclusive planning.

Unit 4: Best Practices in City and Metropolitan Planning

Best practices of city and metropolitan planning in India and abroad, inter-disciplinary policy issues and public actions for guiding city and metropolitan development.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate Urbanization and Terminologies Regarding Urban Areas.
- to appreciate The Legislative Structure for Metropolitan Planning and Development.
- to analyse The Nature, Form and Planning of Metropolitan Cities and Regions in India.
- to have a Global Perspective Regarding Planning and Development Strategies of Metropolis.

References:

1. Aggarwalla Astha. (2011). Agglomeration Economies and Productivity Growth in India. Indian Institute of Management, Ahmadabad.
2. BMRDA (2016). Bangalore Metropolitan Region Revised Structure plan 2031. BMRDA, Bangalore.
3. Board N. C.R. P. Regional Plan 2021. National Capital Region. Government of India, New Delhi.
4. Clark G. and T. Moonen (2014). Mumbai: India's Global City. Brookings Inst Pr., Massachusetts.
5. Glasson J. (1974). An Introduction to Regional Planning. Taylor and Francis Ltd., London.
6. HMDA. (2013). Metropolitan Development Plan – 2031 for Hyderabad Metropolitan Development Region. HMDA, Hyderabad.
7. Jaidit Brar S. G. A. M. C. M. S. R. M. S. (2014). India's Economic Geography in 2025: States, Clusters and Cities. McKinsey and Company, Delhi.
8. KMDA. (2000). Perspective Planning for metropolitan Development, Kolkata. KMDA, Kolkata.
9. Ministry of Urban Development. (2014). Regional Planning Approach, URDPFI Vol. I and Vol.2. Government of India, New Delhi.
10. Wheeler S. (2009). Regions, Mega regions, and Sustainability. Regional Studies, Vol. 43.6, pp. 863-876, Routledge Informa Ltd, England.
11. Bhattacharya Shromoyee & Sujaya Rathi (2015). Re-conceptualizing Smart Cities: A reference framework for India. Niti Aayog, Government of India.
12. The World Bank (2015). World: Inclusive Cities Approach Paper. Report No. AUS8539. IBRD, The World Bank, Washington D.C.
13. Deuskar Chandan (2020). Informal Urbanization and Clientelism: Measuring the global relationship. Sage, London.
14. Mahadevia D. (2024). Urban Planning and its Discontents: Practice in Contemporary India. Taylor & Francis Books India Pvt. Ltd, London.
15. Keitel M.L. and Lukas Behrend (2023). The Topology of Planning Theories. Springer, Berlin.

Recommended Journals:

1. Jain S, J. Panda, and S. Kant. (2014). Possible Socio-scientific Issues of Land-use and Land-cover Change Impact and Associated Tools of Study with a Special Reference to Delhi-Mumbai Industrial Corridor Region. International Journal of earth and Atmospheric Sciences, Vol. 1, pp. 58-70.
2. Strategia A. (2015). Tools and Technologies for Planning the Development of Smart Cities. Journal of Urban Technologies, Vol. 22, No. 2, pp. 43-62.

Course Code	As per Institutional Policy
Nature of Course	Major MRP – 22
Course Title	REGIONAL PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of regions, delineation of various types of regions, and its development.
- to understand the theories of regional development
- to understand Indian region typology and its use in the planning process.
- to understand various programmes and projects associated with various types of regions in India.
- to understand the tools of regional development.

Course Contents

Unit 1: Concepts and Typology of Regions

Basic Concepts in Regions; Defining a region: fluidity and purposiveness; Typology of Regions: Resource Regions, Mega, Macro, Meso, and Micro Regions; Use of clusters in regional planning; Delineation of Regions (Regionalisation); Concept of Global city regions; City beyond region; Rural Settlement Analysis: Types, activity, environment and economic interface in rural habitat; Technology in rural settlement.

Unit 2: Regional Dynamics

Growth of Mega and Metro Regions: Scale, Complexity and its impact on national and international scenario, convergence and divergence; International Regions: SAARC, BRICS, Latino Region, EU Region, etc.; Regional Economy, competitiveness among regions, backward and leading regions in development; Special Regions: SEZ, Agro Regions, Ecological regions, etc.; Regional Disparity Analysis (through factor analysis); Regional Interdependence Analysis (through Input- Output model).

Unit 3: Regions in India and its planning

Resource Regions; Corridors as regions: National, Sub-National, State, sub-state level (District), Blocks and Clusters as a region; Macro, Meso and Micro regions in India; Case Studies from India: NCR and Delhi Mega Region, Mumbai Mega Region, Kolkata Metro Region, Chennai Metro Region, and other Metro Regions in India; Western & Eastern Ghats, North Eastern Region, Coastal Regions, and River Valley Regions; Corridors: Golden Quadrilateral, Delhi-Mumbai, Chennai-Bangalore Industrial Corridor, North-South and East-West Corridor Regions; Core, Fringe and Periphery in a Region and its planning.; Tools and techniques available for planning regions in India; Role of 73 and 74 CAA in regional plan preparation and implementation.

Unit 4: Spatial Inequalities and Regional Disparities

Indexing Spatial Disparities/Inequalities: District Development Product, State Development Product, and National GDP; Human Development Index, Infrastructure Index, Environmental Index, Social Development Index, and Fiscal Transfers based on Indices. Overcoming inequalities: Spatial, economic, social, infrastructure, governance, etc.; Tools and incentives used for balancing the development, Sectoral push, Investment Regions, etc.; Use of Thermal Imageries and Satellite Imageries for assessing inequalities over space.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate tools and indicators to be used in regional planning.
- to appreciate the programmes and projects associated with various types of regions in India.

References:

1. Rengasamy S. (2009). Types of Regions and Regionalization of India. Madurai Institute of Social Sciences.
2. Wheeler S. (2009). Regions, Mega regions, and Sustainability. Taylor and Francis, New York.
3. Department of Town and Country Planning (2005). Decentralised Development Plan. Government of Kerala, Thiruvananthapuram.
4. United Nation Development Program (2008). Decentralised Development Plan. UNDP, New Delhi.
5. GIZ (2018). Regional Development Guidelines: Urban Vertical, Technical Collaboration with Government of India & Germany, New Delhi.
6. Walter Isard (1975). Introduction to Regional Science. Prentice Hall, New Jersey.
7. The World Bank (2009). New Economic Geography. Washington DC.
8. Nallari Raj, Breda Griffith, and Shahid Yusuf (2012). Geography of Growth: Spatial Economics and Competitiveness. The World Bank, Washington DC.
9. Tukker Arnold, and Erik Dietzenbacher. (2013). Global Multiregional Input-Output Frameworks: An Introduction and Outlook. Taylor and Francis, New York.
10. Board N.C.R.P. Regional Plan (2021). National Capital Region. Government of India, New Delhi.
11. Ministry of Panchayati Raj. (2021). Rural Area Development, Formulation, Policy. Government of India.
12. Ministry of Panchayati Raj. (2022). SVAMITVA. Government of India.
13. Jiwan J. (2021). Regional Development and Planning. Rawat Publications, New Delhi.
14. Dr. Ghosh T.K. and Dr. Satyen Sarkar (2022). Regional Disparities in Economic Development: Policies and Prospects for Balanced Development. Serials Publications Pvt. Ltd., New Delhi.

Recommended Journals:

1. Farhana, I. (2012). The Region and Its Margins: Re-Appropriations of the Border from 'Mahagujarat' to Swarnim Gujarat. Economic and Political Weekly, Vol.32, pp.66-72.

Course Code	As per Institutional Policy
Nature of Course	Minor MRP – 21
Course Title	LAND ECONOMICS AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of land markets (formal and illegal), supply and demand equations, types of markets, and typology of land uses related to markets and their impact on spatial development.
- to understand the tools for land management in urban and rural areas.

Course Contents

Unit 1: Introduction to Land Economics

Economic Principles of Land use, Concept of Rent and its application, Demand forecasting for land, factors affecting land supply and demand; interpretation of Revenue Maps (Cadastral maps). Use of GIS Based Mapping and SVAMITVA for land titling.; Market Conditions: formal and informal, legal, and illegal by Markets: Instruments of land policy and impact on markets: Planning instruments, market development instruments, financial development instruments, fiscal instruments, and other supportive instruments: Market by Government and Government Regulation, monopoly power and its use, private development; Rent-seeking and its impact on land supply, access to land by various segments of population, and PPP in land; Introduction to Resettlement & Rehabilitation (R&R).

Unit 2: Demand Side Management

Income elasticity of land, business cycles and its impact on demand for land, externalities and internalities in land development and induced demand, economic growth and demand for land; Changes in tastes and preferences and its effect on type of land; Poor and their demand; Physical, fiscal, financial and legal incentives for inducing or restricting the demand for land; Mega investments and its effect on land.; Property Rights: ownership, user and exchange rights: Its implication on land supply; Land Development: Type, cost, methods of disposal; Corruption and land markets: Corruption, black money and land markets; Relation between land, share and gold markets.

Unit 3: Supply Side Management

Regulation in Land Markets: Social justice and land distribution: public domain, social-democratic regulation, corporatist regulation, collective action of the state and regulation of its supply of land – overall impact of regulation on land prices: Master Plan, Zoning and other planning regulations and their impact on supply.; Land conversions and its regulation/facilitation in peri-urban areas. Land utilization analysis. Common property and its use, tenancy, and ownership, holding size and its relevance.; Land Management Techniques: Private land assembly, TPS, co-operatives in land development, FDI in land development, land pooling and plot reconstitution, transfer of development rights, land sharing and land lease.

Unit 4: Land Pricing & Land Information System (LIS)

Land valuation techniques, land pricing, subsidies, auctions; type of development: plotted, flatted system, and their effect on land pricing; Hedonistic pricing; land price behaviour in urban centres; Constructing the land price index. Government incentives for land supply, assembly, and planned development.; Sources of information for land information. Land

records in Urban and Rural areas - GIS Based property valuation (Unit based pricing, zone based, etc.); peri-urban areas (SVAMITVA) transparency in land transaction, methods of publicizing land price monitoring.

Course Outcomes: Upon the completion of this course, the students will be able

- to assess land development, which tools to use in the core area of the city and which one to use in fringe areas, typology of markets, and how to manage the land development for orderly spatial development.

References:

1. Acharya B. P. (1989). The Indian Urban Land Ceiling Act: a critique of the 1976 legislation and Policy and land Acquisition and Development: Analysis of an Indian Experience. The World Bank, Washington.
2. Ballaney S. (2008). The town planning mechanism in Gujarat, India. The World Bank, Washington.
3. Banerjee B. (2002). Security of Tenure in Indian Cities, Routledge, London.
4. Banerjee B. (2014). Diversity, informality, and opportunities for the poor in villages in Asian megacities: examples from Delhi and Mumbai, Hanzhou: International Policy Workshop on Rural-Urban Poverty Linkages.
5. Department of Land Resources. (2013). National Land Utilization Policy framework for land use planning and management. Ministry of Rural Development, Government of India, New Delhi.
6. Deshpande R. S. (2007). Emerging Issues in Land Policy. Asian Development Bank, New Delhi.
7. Deshpande R. S. (2012). Current land policy issues in India. FAO Corporate Document Repository.
8. Dunkerley H. B. (1983). Urban Land Policy Issues and Opportunities. Oxford University Press, Washington.
9. Farvacque C. and McAuslan, P. (1992). Reforming Urban Land Policies and Institutions in Developing Countries. The World Bank, Washington.
10. Hong Y. H. and Needham, B. (2007). Analysing Land Readjustment. Lincoln Institute of Land Policy, Chicago.
11. Lim G. C. (1987). Land Markets and Public Policy: A Conceptual Framework. Habitat International. Lincoln Institute of Land Policy, Chicago.
12. The World Bank. (2003). Land Policies and Growth and Poverty Reduction. Oxford University Press, Washington.
13. Town and Country Planning Organization (2007). Model Guidelines for Urban Land Policy. Ministry of Urban Development, New Delhi.
14. UN HABITAT. (2007). How to Develop a Pro - poor Land Policy: Process, Guide, and lessons. Kenya, United Nations Human Settlements Programme (UN-HABITAT).
15. United Nations HABITAT. (2014). Urban Planning for City Leaders. United Nations Human Settlements Programme (UN-Habitat), Germany.
16. World Bank. (2007). India Land Policies for Growth and Poverty Reduction. Oxford University Press, Washington.
17. Yuen B. (2007). Squatters no more Singapore Social Housing. Global Urban Development, Washington, DC.
18. Dunk A. (2011). Defining a typology of peri-urban land-use conflicts. Elsevier, Amsterdam.
19. Mohanty K.P. (2021). Land Economics and Policy in Developing Countries. Sage Publications Pvt. Ltd., London.
20. Soliman A.M. and Ramin Keivani (2024). Innovations for Land Management, Governance, and Land Rights for Sustainable Urban Transitions. Springer Nature, Berlin.

Recommended Journals:

1. Rasheed, S. and Parambath, S. G. (2014). Urban Land Management and Planning. International Journal of Scientific and Engineering Research, Vol. 5, No.7, pp. 58 - 62.
2. Roy, A. (2005). Urban Informality Toward an Epistemology of Planning. Journal of the American Planning Association, Vol. 71, No. 2, pp. 147 - 158.

Course Code	As per Institutional Policy
Nature of Course	Minor MRP – 22
Course Title	TRANSPORT CORRIDORS AND REGIONAL DEVELOPMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the concept of corridor development, which has been influencing urban development.
- to understand the influence of national highways on industrial corridors, investment corridors, and other special corridors, and urban and regional development.
- to understand the growth drivers and how it stimulates the urban and regional dimensions through growth nodes/foci.

Course Contents

Unit 1: Importance of Land Use- Transport Integration

Land use and mobility patterns in cities, implications of land use patterns on transport and mobility, land use and transport decisions, need for sustainable development and sustainable transport; need and benefits of land use transport integration, case cities of land use – transport integration.

Unit 2: Principles of Land use – Transport Integration and linked Transport Model

Land use transport integration- definition and concept, land use transport cycle, importance of accessibility, factors affecting land use transport integration, tools for Land use -Transport Integration, key elements of integration, Integrating land use and transport in the planning process, Institutional integration, and legal mechanism. Components of Land use transport model, accessibility – concept, measures and quantification, types of land use transport model- Density saturation gradient method, Hansen’s accessibility model, intervening opportunity model, Garin Lowry model; strategic land use transport model.

Unit 3: Traffic Impact of Land

Principles of traffic impact analysis, land development attributes, traffic generation rates of different land uses, Land development impact on traffic congestion on road segments, intersections and parking, impact on public transportation, pedestrian traffic, and safety.

Unit 4: Transit Oriented Development (TOD)

Transit Oriented Development- Definition, concepts, and key components; principles of TOD, planning norms and standards of TOD, pre-requisites of TOD, financing TOD, role of stakeholders, case studies of TOD Case Studies on Land use – Transport Integration.; Best practices of Land use transport integration in India and abroad, inter- disciplinary policy issues and public action for guiding land use transport integration.; Corridor and emergence of small towns and villages.

Course Outcome: Upon the completion of this course, the students will be able

- to appreciate the interface between transport corridor and its impact on land use development at regional level and how it triggers other corridors such as industrial, investment, etc.
- to appreciate how to channelize the corridor development for orderly spatial development.

References:

1. Ministry of Housing and Urban Affairs. (2017). National Transit Oriented Development (TOD) Policy 2017. Ministry of Housing and Urban Affairs, Government of India, New Delhi.
2. Hilal Yildirim Keser. (2015). Importance of Transport Corridors in Regional Development: The Case of TRACECA. *Sosyoekonomi*.
3. De Prabir and Kavita Iyengar. (2014). Developing Economic Corridors in South Asia. Asian Development Bank, Manila.
4. R. Gael, Jean-Francois Marteau, Charles Kunaka, Jean-Kizito Kabanguka and Oliver Hartmann. (2008). Lessons of Corridor Performance Measurement. Elsevier, Amsterdam.
5. UNHABITAT. (2015). The Role of Transport and Transit Corridors in Fostering International Cooperation for Sustainable Development Issues and Recommendations. Nairobi.
6. R. Pokhrel, Bertolini Luca, Brommelstroette Marco. (2023). How does transportation facilitate regional economic development? A heuristic Mapping of the literature. Elsevier, Amsterdam.
7. Luis Enrique Ramos-Santiago. (2023). Enhancing station level Direct-Demand models with Multi-Scalar accessibility indicators. Elsevier, Amsterdam.
8. Asian Development Bank. (2022). Realizing India's potential for transit-oriented development and land value capture a qualitative and quantitative approach. Asian Development Bank, Manila, Philippines.
9. UN-OHRLLS. (2020). Effective Transit Transport Corridor Development and Management: Report on Best Practices'Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States, New York.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development – SD -21
Course Title	PLANNING STUDIO – 2A QUANTITATIVE METHODS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand about the statistical tools for the analysis of current conditions and future projections and for modelling the future scenario.

Course Contents

Unit 1: Introduction to Statistics, Organising Surveys & Data Collections

Statistics, Functions of Statistics, Applications and Limitations of Statistics; Organising a statistical survey: Techniques of data collection, choice of frame, Degree of accuracy desired, Design of forms, field investigators; collection of Data: Primary and Secondary Data, Drafting the questionnaire, Sources of Secondary data, Editing primary and secondary data.; Census of India tables and its usage in planning; CSO/NSSO/NFHS data and its usage in planning; linking Census of India to NSSO tables.

Unit 2: Sampling, Sample Designs and Classification & Tabulation of Data

Census and Sample Method; Theoretical basis of sampling, Methods of sampling, Size of sample; Classification and Tabulation of data: Meaning and classification of objectives, types of classification, Frequency Distribution; Tabulation of Data: Difference between classification and tabulation, types of tables; soft wares for tabulation.

Unit 3: Measures of Central Value, Dispersion & Skewness, Moments, Kurtosis

Types of Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, General limitations of average. Measures of Dispersion: Measuring Variation: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variations, Chebyshev's theorem, Lorenz curve. Difference between dispersion and skewness, measures of skewness, Moments, Sheppard's correction; Kurtosis.

Unit 4: Correlations and Regressions

Correlation and Causation; types of correlations, Partial and multiple correlation, scattered diagram method, Graphic method; Kar Pearson's coefficient of correlation; Probable Error; Coefficient of Determination, Rank Correlation, Concurrent Deviation method. Regression: Regression lines, Regression Equation; Regression equations in case of correlation table, Standard Error of Estimate. Time Series: Measurement of Trend, Seasonal, cyclical, and irregular variations. Introduction to Interpolation and Extrapolation.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate practical skills in analysing and visualization of data.
- to carry out projections and scenario building.

References:

1. Gupta S. P. (2024). Statistical Methods. Sultan and Chand, Delhi.
2. E. Reid and Keunhyunk Park. (2020). Basic Quantitative Research Methods for Urban Planners. Routledge, London.
3. Anusha Illukkumbura (2020). Introduction to Regression Analysis. Amazon Digital Services LLP.
4. Lohr Sharon L. (2022). Sampling Design and Analysis. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 21
Course Title	PLANNING STUDIO – 2B VILLAGE & BLOCK LEVEL PLANNING
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to expose the students in the practical ways of planning for a village, cluster, block, and tehsil.
- to train the students in applied GIS based on the case study selected.
- to expose the students to the complexities of planning at various levels i.e. village, block, tehsil, peri- urban and urban levels.
- to identify data sources, carry out primary surveys, understand sampling methods, stakeholder analysis, techniques of analysis and come out with policy level proposals.

Course Contents:

Studio will be focusing on Village study, Clusters, Block Development Plan. The studies will focus on spatial, socio-economic, infrastructure, fiscal, institutional governance, legal and financial aspects revealing inter-sectoral issues and challenges to suggest planning measures and strategies for preparing village, cluster, and block development plan based on RADFI and SVAMITVA guidelines. This will be integrated to GPDP and District Development Plan.

Course Outcomes: Upon the completion of this course, the students will be able

- to analyse the existing baseline situations of the village, cluster and Block, identify sector issues and challenges of development;
- to carry out forecast, build future scenarios for Village, Cluster and Block level plans and detailed out plan proposals, present it to the villagers/Block level people.

References:

1. Ministry of Housing and Urban Affairs. (1992). 74th Constitutional Amendment Act. Government of India, New Delhi.
2. Ministry of Panchayati Raj. (1992). 73rd Constitutional Amendment Act. Government of India, New Delhi.
3. Ministry of Urban Affairs & Employment (2014). Urban & regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
4. Ministry of Panchayati Raj (2012). RADFPI Guidelines for Gram Panchayats. Government of India. New Delhi.
5. Ministry of Rural Development (2015). Shyama Prasad Mukerjee Rurban Mission. Government of India, New Delhi.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MRP – 31
Course Title	INSTITUTIONS AND GOVERNANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the formal and informal institutions involved in development process, type of governance system, efficiency, and equity.
- to understand with the digital governance at various levels from Ward to Regional level for governance.

Course Contents

Unit 1: Institutions in Planning

Type of institutions, their role and relevance (legal, political, social, cultural, and economic institutions); formal and informal institutions and spaces – their interface, conflicts, reach and their effectiveness in planning; Analysing the institutions: Methods, process and evaluation; Role of the State in Planning: Market facilitative, regulatory and monopoly power; Hierarchies, Scales and Levels of Planning Institutions. Formal and informal institutions such as constitutions, electoral rules, property rights, and civil rights; How and why people in different groups, countries, and cultural context of institutions to facilitate collective action; Whether different groups construct distinctly different institutions to deal with similar problems and why similar institutions seem to work differently in differently in distinct societies.

Unit 2: Institutions, Organisations and Planning Institutions

Different between organizations and institutions, government and governance; Organisations: types, concepts, theories, structure and functions; approaches to understanding organizations; Town & Country Planning Organization, Urban Development Departments, City Improvement Trust, Development Authorities, Municipal Corporation etc.: objectives, functions and duties, organisational structure, technical capacity, statutory obligations, budgetary outlays; coordination and implementation issues. Institutional building: factors and processes, institution Process and networks: how the network operates. Present Institutions dealing with urban and regional planning; Post 73rd and 74th CAA environment and the modified role and functions of local bodies, local authorities, district authorities and state level agencies; Case studies. Digital Governance.

Unit 3: Decentralisation of Powers

Development Planning and Indian state-centralisation, State-Local Governments, powerlessness, decentralization; institutional frame and mechanism for urban governance as envisaged in 73rd and 74th CAA; transfer of power from Centre to State and State to Local government; role of the existing various states in the light of CAA; Role of various institutions in the governance process and access to government by various stakeholders; Digital Governance, E-Democracy, E- Governance and Grievances Redressal system; case study related to digital and e-governance.

Unit 4: Participatory Governance & Network Governance

Benefits of participation in community planning; process and principles of community planning, bottom-up planning process, community building process, community planning, partnership; community rights and physical planning norms/standards, public distribution

system, community-based evaluation of planned projects. Community Participation Laws.; Role of the state in relation to other Stakeholders (NGOs, Private Sector, Scientific Network, and international institutions), New State Spaces: Invited and contested spaces: changing role of the state- emergence of middle class and its socio- political space, collective bargaining, and collective action; role of donor agencies. Advanced Locality Management, Resident Welfare Associations, and other agencies in the governance system. Role of People's participation in planning process: Process of inclusion and exclusion in governance.; Partnership; community rights and physical planning norms/standards, public distribution system, community-based evaluation of planned projects. Community Participation Laws; Role of the state in relation to other Stakeholders (NGOs, Private Sector, Scientific Network, and international institutions), New State Spaces: Invited and contested spaces: changing role of the state- emergence of middle class and its socio- political space, collective bargaining, and collective action; role of donor agencies. Advanced Locality Management, Resident Welfare Associations, and other agencies in the governance system. Role of People's participation in planning process: Process of inclusion and exclusion in governance.

Course Outcome: Upon the completion of this course, the students will be able

- to equipped to understand the various hierarchy and typology of institutions and spatial development is govern by them.
- to appreciate the sectoral convergence and divergence for development process in spatial development.

References:

1. Klijn E.H. and J.F.M. Koppenjan (2012). Governance network theory: past, present and future, Policy and Politics. Department of Public Administration, Erasmus University, Rotterdam.
2. Le Galès, P. (2001). Urban governance and policy networks: on the boundedness of policy networks. A French case. Springer, Berlin.
3. Osborne S.P. (2010). The new public governance: emerging perspectives on the theory and practice of public governance. Routledge, London.
4. Rhodes R.A.W. (1997). Understanding Governance. Open University Press, Buckingham.
5. Rogers D.L. and D.A. Whetten (1982). Inter-organizational Coordination: Theory, Research, and Implementation. Iowa State University Press, Ames.
6. Teisman G.R., A. van Buuren and L. Gerrits (2008). Managing complex governance networks. Routledge, London.
7. Singh Sukhpal, Jyotsna Jha, A. Indira and A.V. Arunkumar. (2024). Institutions and Public Policy for India's Sustainable Development. Routledge, London.
8. Rydin Y., Robert Beauregard, Marco Cremaschi and Laura Lieto (2022). Regulation and Planning: Practices, Institutions, Agency. Routledge, London.
9. Kapucu Naim (2020). Network Governance: Concepts, Theories, and Applications. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major MRP – 32
Course Title	DISTRICT PLANNING AND RURAL DEVELOPMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the administrative dimensions of spatial planning in India managed from the state to gram panchayat through district planning process.
- to Understand various spatial district planning being done in India and how various institutions are involved in the development process including budget preparations.
- to understand the concept of spatial budgeting and its interface with DDP.
- to understand the RUBAN Mission, RADFPI, SVAMITVA and other Gram Panchayat area's spatial development planning.
- to understand various development programmes and projects at district and gram panchayat levels are carried.

Course Contents

Unit 1: Introduction

Decentralised Planning in India – Historical Development in decentralized district level planning; District and Block Planning; 73 and 74 Constitutional Amendment Acts, Participative District Planning, Role of Planning Commission and an Overview of District Planning Manual of Planning Commission of India, Finance Commissions, and ICT in District Planning.

Unit 2: District Planning

Data Management and District Level Visioning, Institutional and other support for District Planning Committee, Bridging gap through district planning, resource mapping and determination of funding sources, consolidation of urban and rural plans; Multi-Sector and multi-level integrated approach to planning (vertical and horizontal spatial integration); Rural-Urban spatial relationship; District Development Plans – Guidelines for District Planning: Content and context and methodologies, Village Development Plans; An integrated approach, rural norms and standards (spatial). Capacity Building for Decentralised Planning; Democratising Information: using media for district development.; Special Component Plan-Tribal Sub Plan and Weaker Sector Plan allocation, Direct Cash Transfer, Affirmative Action etc., implementation, monitoring and evaluation. North Eastern Plan

Unit 3: Rural Planning and Development

Introduction: Meaning, Scope and overview of rural development; Historical perspective; Rural Development Programmes in India, Problem/perception, and identification; Rural Area Planning - Programmes/Policies/ Schemes for rural development, their coverage, and outcomes; Rural Infrastructure Development Schemes; Rural Employment Schemes. Digital Inclusion for beneficiaries. Micro financing (SHGs) – Sustainable Livelihood.; Programmes: Command Area Programme, Drought Prone Area Programme, Backward Area Development Programme, North Eastern Development Programme etc.; Technology Missions: Water, Sanitation, etc.

Unit 4: Transforming Rural Areas of India

Consumption pattern changes, land utilization changes, cropping pattern changes, holding size change, living standard changes, changes in asset ownership – its implication in the planning process. Aspirational Districts and Blocks, Smart Villages.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the various hierarchy of District planning, budgeting and various government programmes and projects.
- to appreciate the spatial rural development and their programmes and model spatial developments.

References:

1. Singh K. and A. Shishodia (2016). Rural Development Principles, Policies, and Management. Sage Publication, New Delhi.
2. Chopra K., G. K. Kadekodi and M. N. Murthy. (1990). Participatory development people and common property resources. Sage Publication, New Delhi.
3. Jin L., Qian, G. and Yan, W. (2012). Industry-city Integrate Development Oriented High-tech District Development and Planning Strategies: Jinan East High-tech District Case.
4. Lekorwe M.H. (1998). Local government and district planning. JL Van, Schaik.
5. Inamdar N.R. and Kshire, V.K. (1986). District Planning in India: A Case Study of Maharashtra, IBH Publishing Company, Oxford.
6. Thakur D. and Singh, S.N. (1991). District Planning and Panchayati Raj. Deep and Deep Publications, Delhi.
7. Yugandhar B.N. and Mukherjee, A. (1991). Readings in Decentralised Planning with Special Reference to District Planning, Vol. 1. Concept Publishing Company, Delhi.
8. Hooja R. and Mathur, P.C. (1991). District and Decentralized Planning. Rawat Publications, New Delhi.
9. Planning Commission India. (2008). Manual for Integrated District Planning, Government of India.
10. Hooja R. (1973). The District as a Planning Unit: Style and Locus. Journal of Public Administration, Indian.
11. UNDP. (2020). Aspirational Districts Programme: An Appraisal, United Nations Development Programme. India Office, New Delhi.
12. Yigitcanlar Tan, Surabhi Pancholi, Niusha Esmaeilpoorarabi, Rosemary Adu-McVie (2024). Innovation District Planning: Concept, Framework, Practice. Routledge, London.
13. Jha S.K. (2022). Rural Development Administration in India. Arjun Publishing House, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Minor MRP – 31
Course Title	PROJECT PLANNING AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand different techniques of project formulation, monitoring and evaluation of urban and regional projects

Course Contents

Unit 1: Introduction to Project Appraisal, Project Cycle and Stages of Appraisal

Relevance of Project in Metro urban region planning, Identification, project cycle, Urban Planning and project appraisal; Stages of Appraisals: Financial, Economic, Social, Institutional and Environmental appraisals. Sensitivity Analysis of each of these appraisals.

Unit 2: Detailed Project Report (DPR)

Definition of DPR, content in DPR: step by step process, Project Background, Feasibility study approach: (Pre-implementation stage, implementation stage, and post-implementation stage, types of surveys to be carried out for DPR, team mobilization for DPR making; Financial section of DPR: Fundamentals of audit, costing, and budgeting of urban planning related projects. Processes involved in financial planning, including the preparation and analysis of budgets, cost estimation, and financial audits. The role of stakeholder contributions in project financing and management, and strategies for managing emergency risk funds.

Unit 3: Monitoring and Evaluation

Project Monitoring and Evaluation: Network analysis (CPM, PERT), Software for Project Appraisal and Monitoring and Evaluation. Types of Evaluation: Concurrent and Post – Impact Evaluation.

Unit 4: DPR for a Utility Project for a neighbourhood/precinct & DPR for Industrial townships/Large-scale Infrastructure Project

A case study of a neighbourhood to prepare a step-by-step detailed project report for electricity, water supply and conservation including water treatment plant, rainwater harvesting, Sanitation. Solid Waste Management and policy frameworks using GIS; A case study on an existing planned industrial township or a large-scaler regional projects, infrastructure project, single sector vs mixed industries, Industrial corridor projects, the role of NITI Aayog, role of GIS in projects.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the formulation of project with various stages, implementation, monitoring, and evaluating urban and regional planning projects at various scales.
- to demonstrate skills for the preparation of detailed reports of planning and development projects.

References:

1. Dasgupta Partha, Sen Amartya and Marglin Stephen (1972). Guidelines for Project Evaluation. UNIDO, Vienna.
2. Hansen R (1986). Guide to Practical Project Appraisal Social Benefit-Cost Analysis in Developing Countries. UNIDO, Vienna.
3. Heng-Kang Sang, Avebury (1995). Project evaluation: Techniques and practices for developing countries. University of California, USA.
4. IPE and Tamil Nadu Infrastructure Services Limited (2009). Project Appraisal Manual: Capacity Development of National Capital Region Planning Board (NCRPB) for Asian Development Bank. NCRPB, New Delhi.
5. Prasanna Chandra. (1995). Projects: Planning, analysis, selection, implementation and review. Mc Graw Hill Publications, New Delhi.
6. Kerzner Harold R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, New Jersey.
7. Albert Lester (2007). Project Management, Planning and Control. Butterworth Heineman Publications, England.
8. Dragan Z. Milosevic. (2003). Project Management Tool Box: Tools and Techniques for the Practicing Project Manager. John Wiley & Sons, Amazon Publishing house, New York.
9. Taliercio Robert and Eduardo Andres Estrada (2020). Best Practices in Project Appraisal and Selection: How Strong Infrastructure Governance Can End Waste in Public Investment. IMF, Washington DC.
10. Asian Development Bank (2024). Project Performance Evaluation Report for Secondary Cities Development Project. Manila.
11. Bansal Vijay (2023). Project Management: Planning and Scheduling Techniques. Taylor and Francis, London.
12. Kanabar Vijay and Jason Wong (2024). The AI Revolution in Project Management. Pearson Education, London.

Course Code	As per Institutional Policy
Nature of Course	Minor MRP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance, and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Quantitative and Qualitative Research and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing, and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory, and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications, and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 31
Course Title	PLANNING STUDIO – 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 31
Course Title	PLANNING STUDIO – 3B REGIONAL PLANNING
No. of Credits	8(L: 0; T:1; U: 14)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand plan preparation for integrated District(s) planning/metro region.
- to understand the sector interface, hierarchy of settlement planning, and local to district spatial budgeting along with fiscal budgeting interlinks.

Course Content

The objective of this studio is to expose the students in the practical ways of planning for a region. The students will be given a live case study to understand the complexities of planning at various levels i.e., village, cluster, block/ tehsil, and region. The studies will focus on spatial, socio-economic, infrastructure, fiscal, institutional governance, legal and financial aspects revealing inter-sectoral issues and challenges to suggest planning measures and strategies for preparing regional plan based on URDPFI, RADFI and SVAMITVA guidelines.

Course outcome Upon the completion of this course, the students will be able

- to prepare the spatial plan for a district(s)/metro region, and spatial budgeting interface with district budget.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. Banerjee B. (2015). Summary Report of International Policy Workshop on Rural-Urban Poverty Linkages. Asian Development Bank, Manila.
2. Baruah, Joydeep (2009). Planning at the Grassroots: An experiment with Integrated District Planning. OKD Institute of Social Change and Development, MPRA.
3. Cecilia T. (2006). Reader in Rural-Urban Linkages. Routledge, London
4. Corwin A. L. (1977). The Rural Town: Minimal Urban Center. Cleveland State University, Ohio.
5. International Labour Organisation. (2003). Integrated Rural Accessibility Planning. Third Expert Group Meeting Report. Regional Office for Asia and the Pacific, Bangkok.
6. Kulshrestha, S.K. (2012). Urban and Regional Planning in India: A handbook for Professional Practice. Sage India, New Delhi.
7. Majumder R. (2003). Infrastructural Facilities in India: District Level Availability Index. Munich Personal RePEc, MPRA.
8. National Remote Sensing Center. (2015). Bhuvan Panchayat: Space Based Information Support for Decentralised Planning (SIS-DP).
9. Planning Commission India. (2008). Manual for Integrated District Planning, Government of India.
10. Saikia S. (2023). Basic Concepts of Regional Development and Planning. Notion Press, Chennai.
11. Jain A.K. (2022). Urban and Regional Planning: A Practical Guide. Delta Book World, Noida.

Recommended Journals:

1. Jeganathan C, P.S. Roy and M.N. Jha (2011). Multi-Objective Spatial Decision Model for Land use Planning in a Tourism District of India, Journal of Environmental Informatics.
2. Rao M. (1996). Beyond Urban Bias? Economic Political Weekly, Vol.31, No.27, pp. 1743- 1745

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) <i>To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester</i>
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents:

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MRP – 41
Course Title	DEVELOPMENT FINANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the financing mechanisms of finances for urban and regional development including the Centre-State-Local Self Governance fiscal arrangements through Constitution (SFC, CFC, tied and untied grants), through multi-lateral, bi-lateral funding, guarantees, debt equity, taxes and service charges.

Course Contents

Unit 1: Overview of Development Finance

Development Finance- approaches, concepts, components, process, credits rating; Role of Improvement Trusts, Development Authorities, SEZs and Special Purpose Vehicles (SPV) in Equity Finance, Taxes, Fees, Development Charges, Urban Finance Management.

Unit 2: State and Municipal Finance

Central Finance Commission (CFC) and State Finance Commission (SFC)- Constitution, Powers and Functions; Consolidated Fund (Central and State); Centrally Sponsored Schemes; Municipal Finance- Categorisation of Municipal Sources of Revenue, Internal Vs. External Revenue, Capital Vs. Revenue Receipt; Municipal Finance Assessment Framework; Reforms in Municipal Finance- Unit Area Method in Property Tax Calculation, Rationalisation of User Charges; Streamlining Municipal Tax Administration

Unit 3: Public Private Partnership (PPP)

Concept, need, preconditions for Partnerships; Advantages of Collaboration, Methods of Promoting Participation, Regulations and Administrative Procedures; Role of Government as Partner, Regulator and Enforcer; Principles of PPP- Contractual Framework, Selection of Service Provider, Payment Mechanism, Monitoring and Evaluation, Risk and Revenue Sharing; Regulatory Authority for PPP; Model Contract Agreement.

Unit 4: Innovative Methods of Financing Urban Development

Monetary Extraction- Betterment Levy, Impact Fee, External Development Charges and Vacant Land Development Tax; Land Exactions- TDR, Town Planning Scheme, Monetisation of Underutilised Public Assets; Valorisation Charges; External Finance- Debt Financing, PPP, Financial Intermediaries, Municipal Bond, Pooled Finance.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the development finance, its various forms and sources, and techniques to raise funds.
- to appreciate the constitutional provisions of fiscal transfers from centre to state and local self-government, formulas associated with it and its effectiveness.

References:

1. Ryan Roberta and Ronald Woods (2015). Decentralisation and Subsidiarity: Concepts and frameworks for emerging economies. Forum of Federations. Ottawa, Ontario.
2. Participatory Research in Asia (PRIA) (2018). State Finance Commission Recommendations. PRIA, New Delhi.
3. Isabelle Joumard, Hermes Morgavi and Hugo Bourrousse (2017). Achieving strong and balanced regional development in India. Economics Department, Paris.
4. Statistical Office National (2020). Final Report of the Committee for Sub-National Accounts. Ministry of Statistics and Programme Implementation, Government of India.
5. NITI AAYOG (2023): National Multidimensional Poverty Index: A progress Review 2023. NITI AAYOG, Government of India, New Delhi.
6. Central Finance Commission (2021). XV Central Finance Commission. Government of India, New Delhi.
7. Abor Joshua Yindenaba, Charles Komla Delali Adjasi, Robert Lensink (2021). Contemporary Issues in Development Finance. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major MRP - 42
Course Title	LEGISLATION AND PROFESSIONAL PRACTICE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand, the interface between legislation and urban planning and to educate students regarding basic concept of law and Indian constitution and the requirements of various acts, laws, rules and regulations related to housing and urban planning.
- to understand the scope, nature and procedure of professional practice; prepare consultancy proposals and quote fees and charges for professional work in housing and spatial planning.

Course Contents

Unit 1: Concept of Legislation

Significance and Objectives of Legislation; Constitutional basis and provisions relating to land, its development and use; Overview of legal tools in various components of Urban Planning & Development.

Unit 2: Planning Legislation in India and Land Acquisition and Settlement Act

Evolution of Planning Legislation in India; Types and description of various Acts: Town and Country Planning Acts, Improvement Trust Act, Urban Planning and Development Authorities Act: objectives, contents, procedures for preparation and implementation of regional plans, master plans and town planning schemes; Various Acts related to urban governance; land resources, environment protection, public participation in statutory process.; Land Acquisition and Settlement Act, Town and Country Planning Act, Other Acts related to Infrastructure: example:- NHAI, Port, Airport and Railways.

Unit 3: Professional Activities and Responsibilities

Aims and objectives of professional institutes and bodies in planning; Professional roles and responsibilities of planning consultants; Professional ethics; Responsibilities towards clients, fellow professionals and public; Scope of services for different projects.

Unit 4: Consultancy Agreements and Implementation

Consultancy agreements and safeguards; Fees and scales of professional charges; negotiation, liability, code of conduct, arbitration.

Course Outcomes: Upon the completion of this course, the students will be able

- to comprehend the interaction between legislation and urban planning, including how legal frameworks influence urban development and planning processes.
- to acquire foundational knowledge of legal concepts, the Indian constitution, and specific acts, laws, rules, and regulations related to housing and urban planning.
- to identify the scope, nature, and procedural aspects of professional practice in housing and spatial planning.
- to develop skills to prepare detailed consultancy proposals, including project scopes, objectives, and methodologies.
- to appreciate to accurately quote fees and charges for professional services in housing and spatial planning, ensuring transparent and competitive pricing.

References:

1. Kulshrestha S. K. (2012), Urban and Regional Planning in India: A Handbook for Professional Practice. Saga Publications, New Delhi.
2. Naseem Mohammad (2011). Environmental Law in India. Kluwer Law International, Netherlands.
3. Institute of Town Planners, India. (2003). Memorandum Articles of Association and Byelaws. New Delhi.
4. Ministry of Housing and Urban Affairs (2024): 'The Constitution (74th Amendment Act, 1992). Government of India, New Delhi.
5. Ministry of Panchayati Raj (2024). Government of India, New Delhi.
6. Shah Uttam Chand (2023). Planning Legislation covering Urban & Regional Planning and Environmental Laws in India. Notion Press, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Minor MRP – 31
Course Title	RESETTLEMENT AND REHABILITATION
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the impact of development projects that generates voluntarily rehabilitation, displacement citizens and how to rehabilitate them with spatial planning tools and provide livelihood over a period of time.

Course Contents

Unit 1: Land Development and Resultant Resettlement

Land Acquisition Models and Practices in India and elsewhere for projects. Compulsory Acquisition, land sharing and adjustment models, land pooling, negotiated land acquisition. Development induced relocation: voluntary and involuntary resettlement, Resettlement and Rehabilitation Policies. Policies of multi-lateral/bilateral funding institutions: World Bank, Asian Development Bank Policies, National Policy on Resettlement and Rehabilitation and State Policies on R & R and Sector Specific Policies in large projects such as Multi-Purpose Dam Projects, Mining projects, Highway projects, SEZ, etc.

Unit 2: Impact of Resettlement and Rehabilitation Plan

Poverty and Social Impact Assessment for Development projects: Linear Projects (Roads, railways, etc), vis-à-vis non-linear projects (Township/industrial area development, dams, forests). Impact on vulnerable and indigenous groups: Project Affected People and Project Affected Assets, Impact on Women and Children, Gender Action Plans. Resettlement Plan: Context, content, structure, principles and practices: Economic, social and physical implications of resettlement and rehabilitation. Resettlement options and strategies, Self-relocation and project facilitated relocation.

Unit 3: Case Studies

Case studies in Resettlement and Rehabilitation in Development Sectors: Mining, Highways, Power, industrial and township development; Flood affected areas and other infrastructure projects such as Mumbai Transport Project, SEZ, Ports etc.

Unit 4: Rehabilitation & Participation as an important tool for R & R

Policies, Assessing the livelihood losses, livelihood impact assessment and skill mapping surveys, income restoration strategies, training strategy for skill upgradation and meeting demands for shifting economic profiles in the development area.; Use of Participatory tools for Resettlement Planning; Institutional arrangements for R & R - Role of NGOs/CBOs and other Local, State, National and International Organisations in resettlement and rehabilitation; Monitoring and Evaluation of R & R interventions.; Expected Learning Outcome: Students are expected to obtain the skills in understanding various issues related to Resettlement and Rehabilitation due to Development induced displacement and natural displacement and how to minimize the problems associated with it through proper planning as well as participatory approaches.

Course Outcome: Upon the completion of this course, the students will be able

- to appreciate the impact of development projects and how to analyse and treat the voluntary and involuntary displacement citizens and how to provide livelihood and prepare for orderly spatial development.

References:

1. Delhi Development Authority. (2010). Master Plan for Delhi: 2021. Delhi Development Authority, New Delhi.
2. Government of Gujarat. (1976). The Gujarat Town Planning and Urban Development Act. The Gujarat Government Gazette, Gujarat.
3. Ministry of Law and Justice. (1985). The Land Acquisition Act: 1894. Government of India, New Delhi.
4. Ministry of Rural Development. (2007). The National Rehabilitation and Resettlement Policy. Department of Land Resources, New Delhi.
5. Ministry of Rural Development. (2012). The land Acquisition, Rehabilitation and Resettlement Bill: 2011. Lok Sabha Secretariat, New Delhi.
6. Ministry of Rural Development. (2013). The right to fair compensation and transparency in land acquisition, rehabilitation, and resettlement Act. Government of India, New Delhi.
7. Ministry of Rural Development. (2014). The right to fair compensation and transparency in land acquisition, rehabilitation, and resettlement amendment ordinance. Government of India, New Delhi.
8. Ministry of Rural Development. (2015). The right to fair compensation and transparency in land acquisition, rehabilitation, and resettlement (second amendment) bill. Government of India, New Delhi.
9. Ministry of Rural Development. (2015). The right to fair compensation and transparency in land acquisition, rehabilitation, and resettlement amendment bill. Government of India, New Delhi.
10. Johnson Cassidy, Garima Jain, Allan Lavel (2021). Rethinking Urban Risk and Resettlement in the Global South. UCL Press, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.4.: Two-Year M. Plan/ M. Tech (Transport Planning)

Programme Objectives

- The Program aims to enable students to comprehend the complexities of urban transport and develop their capacities to shape the future of transport in cities by understanding the theories and practices in transportation planning at various levels.
- The programme will equip the students with the analytical skills necessary for the development and evaluation of policy and practice in the transport sector.

Programme Outcomes

- Upon completion of the program, students will be equipped with a comprehensive understanding of the principles and methodology towards preparation of a comprehensive transport plan of an area. They will be able to analyse the complex interplay between transportation infrastructure, urban development, and socio-economic factors using analytical transport models.
- Students will also be able to develop sustainable and inclusive transportation plans that address the needs of diverse user groups and evaluate the economic, environment and social impacts of transportation projects. Additionally, they will be able apply advanced research methods and models, collaborate effectively with stakeholders, and utilize software and data analytics in evolving a sustainable and resilient transportation systems that promote economic growth and improve quality of life

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MTP-21)	Urban Transport Planning	2	1	0	3
	Major (MTP-22)	Traffic Engineering and Design	2	1	0	3
	Minor (MTP-21)	Public Transport Planning	1	1	0	2
	Minor (MTP-22)	Transport Economics	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Applied Quantitative Techniques and Software Applications	0	0	4	2
		Planning Studio – 21B Mobility Plan for a City	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MTP-31)	Logistics and Freight Distribution	2	1	0	3
	Major (MTP-32)	Intelligent Transport System	2	1	0	3
	Minor (MTP-31)	Road Safety and Environment	1	1	0	2
	Minor (MTP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Multi-modal Interchange Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MTP-41)	Transport Policy, Legislation, and Institutional Framework	2	1	0	3
	Major (MTP-42)	Sustainable Mobility Planning and Management	2	1	0	3
	Minor (MTP-41)	Project Planning, Appraisal and Management	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Common First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major MTP - 21
Course Title	URBAN TRANSPORT PLANNING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand principles of urban transport and land use planning integration.
- to understand different types of transport surveys.
- to understand four-stage transport demand modelling.
- to understand mass transit system planning and mode selection.
- to understand approaches for evolving sustainable transport.

Course Contents

Unit 1: Urban Transport and Land use

Urban transport systems; Urban forms and structure; Impact on travel pattern; Land use-transport cycle and its impact on land use; Principles of land use-transport model; Mobility and accessibility.

Unit 2: Transport Planning Process

Urban transport planning process: study area delineation, zoning, data and inventory needs, traffic surveys and studies; Analytical outputs and their use.

Unit 3: Transport Demand Modelling

Aggregate demand modelling approach; Trip generation models; Trip distribution models and calibration; Modal split models and its calibration; Traffic assignment techniques; Disaggregate travel demand models: disaggregate choice models, modelling inter-city travel demand.

Unit 4: Urban Transport Policies & Mobility Consideration

Urban transport policies and issues related to sustainability; Strategies for urban transport improvement; Global best practices; Mobility consideration for disadvantaged groups.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate transport planning process and its data requirements.
- to conduct different types of transport surveys/studies and their analysis
- to appreciate different travel demand models and their application in plan preparation
- to develop understanding about the need for appropriate mass transit systems and inclusive policy measures

References:

1. Stopher P.R. and A.H. Meyburg. (1975). Urban Transportation Modelling and Planning. Lexington Books, Lexington.
2. Oppenheim Norbert and Robert Oppenheim. (1995). Urban Travel Demand Modelling. John Wiley & Sons, New Jersey.
3. Hutchinson B.G. (1974). Principles of Urban Transport Systems Planning. McGraw Hill Book Company, New York.
4. Sheffi Y. (1984). Urban Transportation Networks. Prentice Hall, Inc., New Jersey.

5. Wiilumsen Luis G. and Juan de Dios Ortuzer. (2011). *Modelling Transport*. John Wiley & Sons, New Jersey.
6. Black John. (2018). *Urban Transport Planning: Theory and Practice*. Routledge, London.
7. Kadiyali L.R. (1999). *Traffic Engineering and Transport Planning*. Khanna Publishers, New Delhi.
8. Ponnuswamy S. (2012). *Urban Transportation: Planning, Operation and Management*. McGraw-Hill Education Private Limited, New York.
9. Michael Meyer D. and Eric J. Miller. (2001). *Urban Transportation Planning: A decision oriented approach*. McGraw Hill Book Company, New York.
10. Agarwal O.P, Samuel Zimmerman, and Ajay Kumar. (2018). *Emerging Paradigms in Urban Mobility*. Elsevier, Amsterdam.
11. Boyce David, Richard Dillon, and John Marchetti (2005). *Transportation Planning: A Guide to the Practice*. Elgar, Massachusetts.
12. Bertolini L. (2017). *Planning the Mobile Metropolis: Transport for People, Places and the Planet*. Palgrave, London.
13. Noto Guido. (2020). *Strategic Planning for Urban Transportation*. Springer, Berlin.
14. Mohan Dinesh and Geetam Tiwari. (2021). *Sustainable Approaches to Urban Transport*. Taylor and Francis Group, London.
15. Wang Wuhong, Lisheng Jin and Haiqiu Tan (2024). *Smart Transportation and Green Mobility Safety*. Springer, Berlin.
16. Wee Bert van, Jan A. Annema, David Banister, Baiba Pudāne (2023). *The Transport System and Transport Policy*. Edward Elgar Publishing, Basel.

Course Code	As per Institutional Policy
Nature of Course	Major MTP – 22
Course Title	TRAFFIC ENGINEERING AND DESIGN
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand principles of traffic engineering including traffic flow, capacity, level of service
- to understand principles of planning and design of roads, junctions, grade separated facilities to and parking infrastructure
- to understand principles of planning and design of facilities for pedestrians and cyclists.

Course Contents

Unit 1: Traffic Flow Theory and Capacity of Roads

Road users and behaviour; Relationship between the traffic flow variables; Fundamental diagrams of traffic flow; Shockwave analysis; Definition of capacity and level of service, factors affecting capacity and level of service; Static and dynamic PCU, (*passenger car unit) design service volume; Capacity norms for urban roads, intercity and highways

Unit 2: Design of Road Infrastructure

Road cross-sectional elements: right of way, carriageway, median, service lane, footpath, curb, camber, side slope, service road etc. for different hierarchy of roads; Geometry of horizontal curves and vertical curves, super elevation, sight distance, access control etc.; Crash barriers / cushions.

Unit 3: Design of Intersections

Types of intersections, visibility, and design principles: alignment and vertical profile, visibility, radii of curves, channelization; Roundabouts: capacity and design; Capacity of signalized intersection; Grade separated intersection design elements: ramp gradient, acceleration and deceleration lanes, weaving sections, etc.

Unit 4: Traffic Signal Control, Regulations & Management

Introduction to traffic signals, warrant for signals, phasing and inter green period, saturation flow, and optimization of signals; Vehicle actuated signal facilities; Co-ordination of traffic signal, area traffic control system; Regulations: basic principles of regulation of speed, drivers, mixed traffic, parking etc.; Enforcement of regulation; traffic management measures; Transport system management techniques and its applications.

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge of traffic engineering principles and practices.
- to develop skills in traffic data analysis and modelling.
- to design safe, efficient, and sustainable transport infrastructure solutions.

References:

1. D. May Adolf. (1990). Traffic Flow Fundamentals. Pearson, London.
2. Kadiyali L.R. (1999). Traffic Engineering and Transport Planning. Khanna Publishers, New Delhi.

3. Roess R, Elena Prassas and William McShane. (2010). Traffic Engineering. Pearson, London.
4. Flaherty C.A. (2006). Transportation Planning and Traffic Engineering. Butterworth-Heinemann, Oxford.
5. Brian Wolshon and Anurag Pande. (2016). Traffic Engineering Handbook. Institute of Transportation Engineers. John Wiley & Sons, New York.
6. Homburger W. S. (1992). Fundamentals of Traffic Engineering. Institute of Transportation Studies, University of California, Berkeley.
7. Khisty, C.J. and B.K. Lall. (2016). Transportation Engineering: An Introduction. Prentice Hall of India Pvt. Ltd., New Delhi
8. Kuhn B.T. (2019). Transportation Engineering: A Practical Approach to Highway Design, Traffic Analysis, and Systems Operations. McGraw-Hill Education, New York.
9. Dhamaniya Ashish, Sai Chand and Indrajit Ghosh. (2024). Recent Advances in Traffic Engineering. Springer, Berlin.
10. Brady Dominic (2022). Traffic Engineering. Murphy and Moore Publishing, New York.
11. Button Kenneth J. and David A. Hensher (2021). Handbook of Transport Systems and Traffic Control. Emerald, England.

Course Code	As per Institutional Policy
Nature of Course	Minor MTP - 21
Course Title	PUBLIC TRANSPORT PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the complexities of public transport systems and their role in urban development.
- to understand factors influencing public transport supply and demand.
- to understand design efficient and sustainable public transport networks and infrastructure.
- to understand the economic and social impacts of public transport policies and investments.

Course Contents

Unit 1: Public Transport System

Typology of public transport modes; Genesis of mass transit system and Para transit system; technological features of rail and road based mass transit systems; Public transport based city form and structure

Unit 2: Public Transport Supply and Demand

Public transport demand and supply indicators; Determinants of public transport supply, and demand; Public transport supply and demand characteristics in cities of various sizes; Physical and financial performance indicators for public transport; Public transport fare types and pricing criteria; Price elasticity of demand; Consumer surplus.

Unit 3: Bus Route Network Planning and Scheduling

Type and density of bus route network; Bus route network planning principles; Public transport accessibility analysis; Bus scheduling and time table principles.

Unit 4: Bus Stops, Terminals, and Depot Infrastructure

Bus stops: types and planning guidelines; Bus terminals: types, locations, facilities and land area; Interchange: concepts, functions and planning guidelines; Bus depots: functions, activity and land requirements; Planning guidelines.

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate a comprehensive understanding of public transport systems and their planning principles.
- to analyse public transport data and assess performance indicators.
- to develop bus route networks and bus schedules in public transport operations.
- to plan and design appropriate bus stops, terminals, and depot infrastructure.

References:

1. White Peter R. (2016). Public Transport: Its Planning, Management and Operation. Routledge, London.
2. Abdallah Thomas. (2017). Sustainable Mass Transit: Challenges and Opportunities in Urban Public Transportation. Elsevier, Amsterdam.
3. Singal B.I. (2018). Public Transport Planning: A Viable Integrated Multimodal Citywide Network. Copal Publishing, Ghaziabad.

4. Daganzo Carlos and Yanfeng Ouyang. (2019). Public Transportation Systems: Principles of System Design, Operations Planning and Real-time Control.
5. Vuchic V.R. (2005). Urban Transit: Operations, Planning and Economics. John Wiley & Sons Inc., New York.
6. Gray Geaorge E. and Lester A. Hoel. (1991). Public Transportation. Prentice Hall PTR, New Jersey.
7. Alberti F., Abraham R. Matamanda, Bao-Jie He and Paola Gallo. (2023). Urban and Transit Planning. Springer, Berlin.
8. Verma Ashish and T.V. Ramanayya (2022). Public Transport Planning and Management in Developing Countries. Paperback. CRC Press.
9. Rowe Jacob. (2022). Public Transportation: Planning, Operations and Management. New York Research Press.

Course Code	As per Institutional Policy
Nature of Course	Minor MTP - 22
Course Title	TRANSPORT ECONOMICS
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the concept of transport demand and supply of transport services
- to understand the about the transport cost, its components and pricing mechanisms in transport.
- to understand various methods of financing transport systems

Course Contents

Unit 1: Transport Demand and Supply

Demand for transport, factors influencing demand, elasticity of demand, measures of elasticity, supply of transport.

Unit 2: Costing

Fixed and variable cost; Joint and common cost; Cost allocation; User cost internal cost; External cost; Economic cost.

Unit 3: Pricing of Transport Services

Principle of pricing; Marginal cost pricing; Price discrimination; Revenues; Transport subsidies; Operational objectives of pricing; Congestion pricing.

Unit 4: Financing Transport

Approaches for financing transport; Budgetary provisions; PPP models; Innovative approaches for financing transport; Case studies.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the determinants of transport demand and supply, concept of price, income elasticity and cross elasticity of demand, forecast transport demand using econometric tools.
- to appreciate the costs and pricing implications and approaches of financing transport systems

References:

1. Palma André de, Emile Quinet and Robin Lindsey (2011). Handbook of Transport Economics. Edward Elgar publishing, Cheltenham.
2. Cowie Jonathan and Stephen Ison (2018). Handbook of Transport Economics. The Routledge, London.
3. Oum Tae Hoon (2005). Transport Economics: Selected Reading. Routledge, London.
4. Gwilliam K.M. and P.J. Mackie (2018). Economics and Transport Policy. Routledge, London.
5. Patrick McCarthy S. (2001). Transportation Economics: Theory and Practice: A Case Study Approach. Wiley-Blackwell, New Jersey.
6. Gillen D. and Werner Rothengatter. (2020). Transportation Research, Economics and Policy. Springer, Berlin.
7. Button Kenneth (2022). Transport Economics. Edward Elgar Publishing, Cheltenham.
8. Tirachini Alejandro, Daniel Hörcher and Erik T. Verhoef (2023). Handbook on Transport Pricing and Financing. Edward Elgar publishing, Cheltenham.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- To add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO – 2A APPLIED QUANTITATIVE TECHNIQUES AND SOFTWARE APPLICATIONS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the quantitative tools and software applications necessary for effective transport planning.

Course Contents

Statistical Methods and Application

Sampling techniques; Statistical distribution; ANOVA; Regression analysis; Factor analysis; Discriminant analysis.

Software Application in Transport Planning and Traffic Engineering

Use of transport planning software such as VISSIM, VISUM, TRANSYT, SIDRA

Course Outcomes: Upon the completion of this course, the students will be able

- to apply various quantitative techniques in data analysis and its statistical interpretation
- to develop capability to apply software in transport planning problems
- to integrate quantitative methods with qualitative research

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO – 2B MOBILITY PLAN FOR A CITY
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the process of preparing a Comprehensive Mobility Plan
- to understand how to conduct Traffic surveys and studies
- to carry out Travel demand assessment and mass transport corridor identification

Course Contents

Understanding the base of the city: Prevailing concept of urban planning and development, contents of the study of a city/town, best practices adopted in India (abroad examples) etc. The purpose of the study is to prepare a master plan of that town which aims at improving the urban environment.

Students shall be required to prepare master plan for the urban area studied. The scope of master plan preparation will includes working out the detailed requirements, formulation goals, objectives and policies, planning considerations, conceptual framework, planning proposals including zoning and phasing, and implementation strategy covering organizational and financial aspects.

The master plan shall be submitted in the form of a detailed report illustrated with necessary maps, charts, drawings, sketches.

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate skills of carrying out various surveys and studies for preparing a Mobility Plan
- to appreciate Model Travel Demand
- to identify mass transport corridors
- to prepare comprehensive mobility plan proposals.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. Indian Roads Congress. IRC Specifications, Standards and Design Codes. Government of India.
2. Delhi Development Authority. (2010). Street Design Guidelines: UTTIPEC standard and guidelines. Government of New Delhi.
3. Ministry of Urban Affairs & Employment (2014). Urban & regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
4. Ministry of Housing and Urban Affairs. Final CMP Reports financed by Central Government. Government of India.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MTP - 31
Course Title	LOGISTICS AND FREIGHT DISTRIBUTION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the importance of logistics, supply chain and freight distribution patterns, and determinants of freight demand.
- to understand various techniques for demand assessment and distribution of freight traffic including routing, scheduling etc.
- to understand planning norms and guidelines for different freight handling facilities.

Course Contents

Unit 1: Logistics and Freight Demand

Concepts of logistics and supply chain management; Decision area in logistics; Logistics service providers at national level; Determinants of freight demand at national and regional level; Emerging concepts in logistics; National policies on logistics.

Unit 2: Freight Distribution and Handling Facilities

Freight distribution channels; Distribution costs; Transport modes selection; Route selection (VRP); Vehicles scheduling (TSP); Fleet sizing; Warehouses: type of warehouses, planning and design consideration; Types of freight terminals and their planning consideration: truck terminals, integrated freight complex, inland container depots, logistics hub, MMLPS, dark warehouses etc.

Unit 3: Planning for Urban Freight

Importance of urban freight: key stakeholders, urban freight movement characteristics; Logistics sprawl and its impact; Urban freight information and its collection; Freight demand assessment and its modelling; Freight handling facilities; E-commerce delivery systems and practices.

Unit 4: Urban Freight Management and Policy Measures

Vehicle access and loading/unloading operations; Freight traffic management: low emission zones, night deliveries, nearby delivery areas, its applications; Urban freight: policy measures, city logistics, freight quality partnerships, low emission zones (LEZ), decarbonizing urban freight; Global best practices.

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge of logistics and supply chain in freight deliveries
- to develop capability of assessing freight demand and its distribution methods
- to develop capacity to plan for various types of freight handling facilities
- to develop sustainable logistics strategies that align with urban planning goals.

References:

1. Taniguchi Eiichi and Russell G. Thompson (2001). City Logistics: Network Modelling and Intelligent Transport Systems. Elsevier, Amsterdam.
2. Rushton Alan, Phil Croucher and Peter Baker (2014). Handbook of Logistics and Distribution Management. Kogan Page publication, New York.
3. Kasilingam Raja G. (2012). Logistics and Transportation. Springer-Verlag, New York Inc.
4. Musgrave Adam. (2013). Transportation and Logistics Management. Global Vision Publishing House, New Delhi.
5. Taniguchi Eiichi and R.G. Thompson. (2004). Logistics Systems for Sustainable Cities: Proceedings of the 3rd International Conference on City Logistics. Elsevier Science Ltd., Amsterdam.
6. Martin Heinrich. (2018). Warehousing and Transportation Logistics: Systems, Planning, Application and Cost Effectiveness. Kogan Page publication, New York.
7. Bektas T. (2019). Freight Transport and Distribution: Concepts and Optimisation Models. CRC Press, London.
8. Monios Jason, Lucy Budd and Stephen Ison. (2023). Handbook of Urban Logistics. Routledge International Handbooks, London.
9. Matthews Darin L. and Linda L. Stanley. (2022). Managing Logistics and Transportation in the Public Sector Routledge, London.
10. Marcucci Edoardo, Valerio Gatta and Michela Le Pira (2023). Handbook on City Logistics and Urban Freight. Edward Elgar Publishing, Basel.

Course Code	As per Institutional Policy
Nature of Course	Major MTP - 32
Course Title	INTELLIGENT TRANSPORT SYSTEM
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand technological and functional requirements of ITS.
- to understand different types of ITS and user services.
- to understand different types of ITS applications.

Course Contents

Unit 1: Concept of ITS

Definition; Concepts; Types of intelligent transport system (ITS); Integration of advanced technologies in transport systems; Advanced traffic management systems.

Unit 2: ITS Technology and Architecture

ITS technology: software, equipment, architecture; key technologies like sensors, GPS, data processing, and communication systems; Application software for traffic management, vehicle control, and data analysis,

Unit 3: Application of ITS in Transport Infrastructure, Planning and Management

Traffic planning and management; Emergency and incident management; Public transport system: terminal and depots management system, infrastructure management; Commercial vehicle management: highway surveillance, case studies; Cooperative vehicle system: traffic management, optimization of traffic flow, reduction of congestion, and Route management: monitoring highway conditions, traffic, and safety systems.

Unit 4: Performance Evaluation & Implementation of ITS

ITS implementation, case studies, institutional and organizational issues, steps and strategies for successful its deployment in cities or regions, challenges related to regulations, policy-making, and governance; Coordination between multiple agencies, stakeholders.

Course Outcomes: Upon the completion of this course, the students will be able

- to identify components required for functioning of ITS.
- to appreciate various types of ITSs applications and user services.
- to appreciate the application of ITS in different contextual case situations

References:

1. Gordon Robert. (2015). Intelligent Transportation Systems: Functional Design for Effective Traffic Management. Springer publications, Berlin.
2. Paolo Pagano. (2016). Intelligent Transportation Systems: From Good Practices to Standards. CRC Press, Florida.
3. Ghosh Sumit, and Tony S. Lee. (2010). Intelligent Transportation Systems: Smart and Green Infrastructure Design. Routledge, London.
4. Sarkar P.K. and Amit Kumar Jain. (2018). Intelligent Transport Systems. PHI Learning Pvt. Ltd., Delhi.
5. Tyagi Amit Kumar, and Niladhuri Sreenath. (2022). Intelligent Transportation Systems: Theory

and Practice. Springer, berlin.

6. Upadhyay Ram Krishna , Sunil Kumar Sharma, Vikram Kumar (2024). Intelligent Transportation System and Advanced Technology (Energy, Environment, and Sustainability). Springer, Berlin.
7. Dimitrakopoulos George J., Lorna Uden and Iraklis Varlamis (2020). The Future of Intelligent Transport Systems. Elsevier Science Publishing Co Inc., Amsterdam.

Course Code	As per Institutional Policy
Nature of Course	Minor MTP – 31
Course Title	ROAD SAFETY AND ENVIRONMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the problems of mobility in terms of vulnerability and accidents and imparts knowledge on road safety aspects and its detailed components.
- to understand the environmental implications of the transport systems in the cities.

Course Contents

Unit 1: Road Safety Scenario

Road safety scenario at national and global level; Collection and recording of the road accident data using A1 and A4 accident form.

Unit 2: Road Risk Analysis

Accident investigation: analysis & prevention, counter-measures at hazardous locations; Black spot study: statistical analysis; Risk parameters and analysis.

Unit 3: Road Safety Engineering and Audit

Road safety engineering: traffic sign, marking, traffic control and safety measures; Non-engineering measures for improvement of road safety; Road safety audit at different stages of the project; Case studies.

Unit 4: Road Safety Policies and Regulations

Basic definition of noise and measurements of noise level L10, L50, L90, LEQ; relationship between traffic flow and traffic noise; Noise abatement measures; Study of air pollution, effect of air pollutants on health; Different energy base and technological innovations in vehicle design; Greenhouse gas and climate change; Impact of transport on climate change; Environmental impact assessment; Demonstration of case studies of EIA.

Course Outcomes: Upon the completion of this course, the students will be able

- to identify components required for functioning of ITS.
- to appreciate various types of ITSs applications and user services.
- to appreciate the application of ITS in different contextual case situations

References:

1. Homburger W. S. (1992). Fundamentals of Traffic Engineering. Institute of Transportation Studies, University of California, Berkeley.
2. Khisty, C.J. and B.K. Lall. (2016). Transportation Engineering: An Introduction. Prentice Hall of India Pvt. Ltd., New Delhi.
3. Bell David (2010). Road Safety Management. Prentice Hall of India Pvt. Ltd., New Delhi.
4. D. May Adolf. (1990). Traffic Flow Fundamentals. Pearson, London.
5. Kadiyali L.R. (1999). Traffic Engineering and Transport Planning. Khanna Publishers, New Delhi.
6. Roess R, Elena Prassas and William McShane. (2010). Traffic Engineering. Pearson, London.

7. Flaherty C.A. (2006). Transportation Planning and Traffic Engineering. Butterworth-Heinemann, Oxford.
8. Brian Wolshon and Anurag Pande. (2016). Traffic Engineering Handbook. Institute of Transportation Engineers. John Wiley & Sons, New York.
9. Ministry of Road Transport and Highways. (2015). Book on Road Safety Signages and Signs. Government of India.
10. Handbook of Road Safety (2020). Haryana State Legal Services Authority. Government of Haryana.
11. Tiwari Geetam and Dinesh Mohan (2021). Transport and Safety: Systems, Approaches, and Implementation. Springer Nature, Berlin.
12. Ministry of Road Transport and Highways (2019). Manual on Road Safety Audit. Indian Road Congress (IRC), Government of India.

Course Code	As per Institutional Policy
Nature of Course	Minor MTP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Qualitative and Quantitative Research, and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO – 3B MULTI-MODAL INTERCHANGE PLANNING
No. of Credits	5 (L: 0; T:0; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the concept of multi -modal interchange (passenger/ goods) in overall transport system, its activity patterns, besides planning and design imperatives for such a facility.
- to understand to develop sustainable and efficient solutions for a case multimodal interchange facility, based on potential demand for the facility, network connectivity, site features and appropriate planning norms.

Course Contents

This studio aims to equip students with the skills to understand the concept of multi -modal interchange (passenger/ goods) in overall transport system, its activity patterns, besides planning and design imperatives for such a facility. Further based on potential demand for the facility, network connectivity, site features and appropriate planning norms the students will develop sustainable and efficient solutions for a case multimodal interchange facility.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the concept and components of a multi-modal interchange plan
- to assess the demand at such a facility based on user needs and other determinants
- to develop efficient and sustainable plan for such a facility taking into account site features, network conditions, potential demand, planning norms and environment implications.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. Indian Roads Congress. IRC Specifications, Standards and Design Codes. Government of India.
2. Delhi Development Authority. (2010). Street Design Guidelines: UTTIPEC standard and guidelines. Government of New Delhi.
3. Ministry of Urban Affairs & Employment (2014). Urban & regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
4. Ministry of Housing and Urban Affairs. Final CMP Reports financed by Central Government. Government of India.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3C FEASIBILITY OF TRANSPORT INFRASTRUCTURE PROJECTS
No. of Credits	5 (L: 0; T:0; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the skills to conduct comprehensive feasibility studies for various transport infrastructure projects.
- to understand how to assess the technical, economic, financial, and environmental viability of proposed projects.

Course Contents

This studio aims to equip students with the skills to conduct comprehensive feasibility studies for various transport infrastructure projects. Students will learn to assess the technical, economic, financial, and environmental viability of proposed projects.

Course Outcomes: Upon the completion of this course, the students will be able

- to conduct thorough feasibility studies.
- to evaluate project alternatives
- to apply quantitative and qualitative analysis.
- to prepare project proposals.
- to consider the social and environmental impacts of projects.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. ADB. (2013). Cost Benefit Analysis for Development: A Practical Guide. Asian Development Bank, Phillipines.
2. Overton Rodney (2007). Feasibility Studies Made Simple. Martin Books Pvt. Ltd., Australia.
3. Harod Kerzner (2006). Project Management: A System Approach to Planning, Scheduling and Control. John Wile & Sons, London.
4. Driesen David M. (2004). Distributing the Cost of Environmental, Health and Safety protection: The Feasibility Principle, Cost Benefit Analysis and Regulatory Reform. Boston College Law School, Washington.
5. Chandra Prasanna (2002). Projects Planning, Analysis, Financing, Implementation and Review. Sage Publishers, New Delhi.
6. Goodman Louis J. (1988). Feasibility Analysis and Appraisal of Projects. Springer, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents:

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MTP - 41
Course Title	TRANSPORT POLICY, LEGISLATION, AND INSTITUTIONAL FRAMEWORK
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand transport policy formulation process and various policies through case studies.
- to understand transport institutions in different sectors at national, state, and local level legislative and regulatory framework related to passenger and freight mobility.

Course Contents

Unit 1: Legislation and Acts in Transport Sector

Legislations in Roads, Railways, Civil Aviation, Ports sector, Logistics sector; Motor Vehicle Act; National Highway Act.

Unit 2: National Transport Policies

Transport policies in sectors of road sector, road transport, railways, civil aviation, IWT ports and shipping; National Transport Policy; Electric mobility policies; Logistics sector policies; Financial outlays and budgetary support in transport sector; PPP in transport sector.

Unit 3: Urban Transport Policies

Concept of policies and strategies; Policy process; National Urban Transport Policy (NUTP); Urban bus policy; Metro policy; Urban freight policies; NMT policies; Transport Demand Management (TDM) policies and strategies; Parking policies; TOD policies; Financing urban transport; PPP.

Unit 4: Institutional Framework in Transport Sector

Institutional set ups in roads, road transport, railways, civil Aviation, ports and shipping; Metro Rail Corporations; State Road Transport Undertakings; City Bus Undertakings; Urban Transport set up in municipal authorities, local bodies etc.; UMTA; Special Purpose Vehicles (SPV's); Role of NGO's etc.; Innovative methods in institutional strengthening.

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge of s developing transport policies in different context.
- to appreciate the transport institutions, their organization structure and functions.
- to appreciate the transport regulations and statutes.

References:

1. Banister David. (2010). Transport Policy: Principles and Practice. Spon Press, London.
2. Wellman (2012). Urban Infrastructure: Finance and Management. Wiley Blackwell, New Jersey.
3. Ministry of Urban Development (2011). Report on Indian Urban Infrastructure and Services. The High-Powered Expert Committee (HPEC) for Estimating the Investment Requirements for Urban Infrastructure Services. Government of India, New Delhi.

4. Sethi V.K. (2007). Infrastructure Development in India. New Century Publications, New Delhi.
5. Peterson G.E. (2007). Financing Cities. Sage Publications, New Delhi.
6. Bhatia. H.L. (2003). Public Finance. Vikas Publishing House Pvt. Ltd., New Delhi.
7. National Institute of Urban Affairs (1997). Financing Urban Infrastructure in India. NIUA, New Delhi.
8. Asian Development Bank (2019). Transport Sector Development. ADB, Philippines.
9. Organisation for Economic Co-operation and Development (2018). Infrastructure Investment. OECD, Paris.
10. Ministry of Housing and Urban Affairs (2014). National Urban Transport Policy. Government of India.
11. Whitelegg John. (2023). The Transport Policy in the EEC. Taylor & Francis Group, London.
12. Asian Infrastructure Investment Bank (2020). Transport Sector Strategy: Sustainable and Integrated Transport for Trade and Economic Growth in Asia.
13. Zaman Sharaz (2024). A Guide to Special Purpose Vehicles. Notion Press, Chennai.
14. Ravishankar S. and Asmeeta Das Sharma (2021). Non-Motorized Transport Network in the City: Training Manual. National Institute of Urban Affairs. Ministry of Housing and Urban Affairs, Government of India.

Course Code	As per Institutional Policy
Nature of Course	Major MTP - 42
Course Title	SUSTAINABLE MOBILITY PLANNING AND MANAGEMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand principles of sustainable mobility.
- to understand types of sustainable modes and their operations.
- to understand the principles of mobility management, its approaches and application through case studies.

Course Contents

Unit 1: Introduction to Sustainable Mobility

Defining sustainable mobility (understanding the principles and goals of sustainable transportation); The role of sustainable mobility (addressing urban challenges, reducing environmental impact, and promoting social equity); Key characteristics of sustainable mobility (energy efficiency, accessibility, affordability, and public health benefits).

Unit 2: Sustainable Modes of Transportation

Active transportation (walking, cycling, and micro mobility (e.g., e-bikes, scooters); Public transportation (Buses, trains, subways, and trams); Shared mobility (carpooling, ride-hailing, and bike-sharing); Electric vehicles (Battery electric vehicles (BEVs); Plug-in hybrid electric vehicles (PHEVs); Autonomous vehicles (the potential impact of self-driving cars on sustainable mobility).

Unit 3: Mobility Management

Mobility management strategies (demand management, supply management, and infrastructure planning); Integrated transport planning coordinating different modes of transportation for seamless connectivity); Public-private partnerships (leveraging collaboration between public and private sectors for sustainable mobility initiatives); Case studies (successful examples of mobility management in different cities)

Unit 4: Sustainable Mobility Ecosystems

The concept of sustainable mobility ecosystems (creating interconnected and integrated transportation systems); Role of technology (utilizing technology to enable sustainable mobility (e.g., smart grids, smart cities); Policy and regulatory frameworks (developing supportive policies and regulations for sustainable mobility); Financing sustainable mobility (exploring funding mechanisms and investment opportunities).

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge of sustainable mobility policies and strategies
- to demonstrate knowledge of sustainable modes and their operational features
- to demonstrate knowledge of mobility management in context of sustainable mobility ecosystem.

References:

1. Banister David. (2016). Sustainable Urban Transportation. Routledge, London.
2. Glaeser Edward. (2011). The Future of Cities. Taylor and Francis, London.
3. Vidal John. (2018). The Future of Mobility. Springer, Berlin.
4. Robles José Manuel and Marta González. (2018). Urban Mobility in a Changing World. Springer, Berlin.
5. Cadman David. (2010). The Living City: Towards a Sustainable Future. Routledge, London.
6. Townsend Anthony. (2014). Smart Cities: A Guide to Building Sustainable Cities. W. W. Norton Inc., New York.
7. International Transport Forum (2015). A New Paradigm for Sustainable Urban Mobility. Organisation for Economic Co-operation and Development.
8. Park F. (2024). Sustainable Urban Mobility Planning: A Guide to Achieving Healthy, Equitable, and Livable Cities. Springer, Berlin.
9. Epstein Alex. (2021). The Electric Vehicle Revolution. Vikas Publishing House Pvt. Ltd., New Delhi.
10. Rhodes Jay (2022). Sustainable Transportation: Emerging Technologies. Murphy & Moore Publishing, New York.
11. Carey Curtis (2020). Handbook of Sustainable Transport. Edward Elgar Publishing, Basel.

Course Code	As per Institutional Policy
Nature of Course	Minor MTP - 41
Course Title	PROJECT PLANNING, APPRAISAL AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand transport project planning process and its components
- to understand life cycle cost analysis of transportation projects and likely benefits
- to understand transport finance and appraisal methods
- to understand different transport project appraisal methods

Course Contents

Unit 1: Project Planning and Management

Project management fundamentals (defining projects, project life cycle, and project management methodologies); Project planning process (initiation, planning, execution, monitoring and control, and closure); Project documentation (work breakdown structure (WBS), project schedule, resource allocation, and risk management).

Unit 2: Transport Projects and Stakeholders

Types of transport projects (infrastructure development, transportation systems, and operational improvements); Project identification and selection (needs assessment, feasibility studies, and project prioritization); Stakeholder analysis and engagement (identifying and managing stakeholders involved in transport projects).

Unit 3: Transport Financing

Sources of transport financing (public funds, private investment, public-private partnerships (PPPs); Concept of life cycle cost (understanding the total cost of a project over its entire life cycle); Cost components (identification and quantification of costs (e.g., construction, operation, maintenance); Life cycle cost analysis techniques (present value analysis, net present value (NPV), internal rate of return (IRR)); Cost-benefit analysis (assessing the economic benefits and costs of transport projects); Financial appraisal methods (discounted cash flow analysis, payback period, internal rate of return (IRR));

Unit 4: Transport Project Appraisals

Economic appraisal, social appraisal and environmental appraisal; Risk assessment and management: Identifying and mitigating risks in transport projects; Practices of design, implementation, monitoring, and closure of the project.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the transport project planning process and components
- to assess life cycle cost of transport projects and likely benefits
- to assess transport financing methods and approaches
- to carry out the economic and financial cost benefit analysis of transport project

References:

1. Kerzner Harold R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, New Jersey.
2. Pearce David, Colin Nash, and Ian Wardman. (2005). Economic Appraisal of Transport Projects. The Johns Hopkins University Press, Maryland.
3. Kumar A. and S. Prakash. (2010). Life Cycle Cost Analysis in Transportation Projects: A Review. Sage Publication, New Delhi.
4. Gupta P. and S. Sharma. (2012). Risk Management in Transportation Projects: A Case Study Approach. Springer, Berlin.
5. Awasthi M. and R. Kumar (2015). The Role of Sustainability in Transport Project Appraisal. Springer, Berlin.
6. Larson E.W., Clifford F. Gray and Rohit Joshi. (2021). Project Management: The Managerial Process. McGraw Hill, New Jersey.
7. Bansal Vijay (2023). Project Management: Planning and Scheduling Techniques. Taylor and Francis, London.
8. Tirachini Alejandro, Daniel Hörcher and Erik T. Verhoef (2023). Handbook on Transport Pricing and Financing. Edward Elgar Publishing, Basel.
9. Rouhani Omid M. and (2020). Transportation Project Evaluation Methods/Approaches. MPRA, Munich.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.5.: Two-Year M. Plan/ M. Tech (Environmental Planning)

Programme Objectives:

- To impart knowledge and develop competence on environmental concerns across scales towards environment sensitive spatial planning.
- To develop an understanding of linkages between environment, economic, socio-cultural, public –health, livelihood, legal issues and planning interventions.
- To impart training in requisite qualitative and quantitative skills in scientific assessment and optimization of resource utilization.
- To develop sensitivity towards addressing quality of life and sustainable development goals in the planning process.

Programme Objectives:

- To equip the students with the knowledge of environment planning and its interface with spatial planning at all levels (from site to regional levels). They can be employed in all the Central/ State Pollution Control Boards, Town Planning Departments, Development Authorities, Industrial Townships, Bi-lateral and Multi-lateral Agencies, and also in Green Tribunal, etc.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (EP-21)	Theory of Environment Planning and Design	2	1	0	3
	Major (EP-22)	Environment Monitoring and Assessment	2	1	0	3
	Minor (EP-21)	Environment Economics and Auditing	1	1	0	2
	Minor (EP-22)	Pollution Management and Settlement Planning	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Environment Planning	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (EP-31)	Environment Impact Assessment	2	1	0	3
	Major (EP-32)	Environment Protection and Management	2	1	0	3
	Minor (EP-31)	Project Planning and Management	1	1	0	2
	Minor (EP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Environment Management Plan	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (EP-41)	Environment and Planning Legislation	2	1	0	3
	Major (EP-42)	Resilient Cities	2	1	0	3
	Minor (EP-41)	Climate Change and Mitigation	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Integrated First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major EP – 21
Course Title	THEORY OF ENVIRONMENT PLANNING AND DESIGN
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the concepts of environmental planning, global concerns of habitat patterns, environment challenges, environmental zones, scientific methods of resource analysis, ecosystem, biodiversity conservation, energy, low carbon, urban heat island and green house effects.

Course Contents

Unit 1: Concepts of Environmental Planning

Concepts of Environmental Planning; History of Environmental Planning; Global Concerns; Development of habitat patterns, settlement structure and form in response to environmental challenges.

Unit 2: Environmental Zones, Natural Resource Assessment and Planning

Environmental Zones (Hill, coastal, arid, characteristics, resources, settlements pattern, problems and potentials, regulating mechanisms for development.); Scientific methods for resource analysis for various ecosystems and development imperatives (land, geology, soil, climate, water, vegetation) characteristics, exploitation, causative factors for degradation, analytical techniques; Urban Ecosystem, Ecosystem Services & Biodiversity Conservation

Unit 3: Design Solutions and Environmental Upgradation

Design as a determinant of Environmental quality; Evolution of Environmental design, theories and practice of design Criteria of Urban Environmental design issues-pedestrian-vehicular conflict; City Centre Environment; Housing areas, dereliction, environmental up gradation programmes; Built environment aesthetics of ensemble of buildings, techniques of study of building condition, conservation aspects of built-up areas.

Unit 4: Climate Assessment, Resilience and Technology

Urban climatology; Effects of thermal pollution, factors causing heat island effects, wind movement, radiation, climatic effects on Urban areas, control techniques; Plant material and Design; Climate Change and City Planning; Greenhouse effect, emission sources quantification, impacts of climate change in India.; Environmental approaches to design and planning of urban settlements, use of alternate technology in design of human settlements; Application of Energy code; Techniques of water harvesting, water treatment, recycling, waste disposal, waste minimization, and their implications; Low cost and cleaner technologies; Technologies related to alternate energy: Solar, biomass, biogas, hydro, wind and their usefulness in settlements.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the various basic concepts on environment planning and their impact on habitat.

References:

1. Dhanaraju Vulli. (2016). A text book of Environmental History of India. Dominant Publishers and Distributors Pvt. Ltd., New Delhi.
2. Bouton Shannon, Molly Lindsay and Jonathan Woetzel. (2012). New Models for sustainable growth in emerging-market cities, McKinseys Detroit Office, McKinsey and Company, New York.
3. Organisation Earth System Science (ESSO). (2011). Twelfth Five Year Plan: 2012-17, Working Group Document, Earth System Science Organisation (ESSO). Ministry of Earth Sciences, Government of India.
4. Sharma Vinode. (2004). Handbook of Environment. Bookwell Publications, New Delhi.
5. Prasad Govind. (2012). Handbook of Environmental Science. Discovery Publishing Books Pvt. Ltd. Delhi.
6. Daniels L. Tom and Katherine Daniels. (2003). Environmental Planning Handbook. 1st Edition. Routledge. UK.
7. Folke Ax Christiniz, Brimnes Niels, Jensen Thode Niklas, Oslund Karen. (2011). Cultivating the Colonies: Colonial States and their Environmental Legacies: 12. (Research in International Studies, Global and Comparative Studies). Ohio University Press, 1st Edition. India.
8. Cullet Philippe, Lovleen Bhullar, Koonan Sujith. (2024). The Oxford Handbook of Environmental and Natural Resources Law in India. Oxford Handbooks, New Delhi.
9. The World Economic Forum (2024): The Global Risks: Report 2024, 19th Edition Insight Report. The World Economic Forum in partnership with Marsh McLennan and Zurich Insurance Group, Geneva, Switzerland.
10. The World Economic Forum (2023). Seizing the momentum to build resilience for a future of sustainable inclusive growth. The World Economic Forum with McKinsey and Company, Switzerland.
11. Allison Lincoln (2023). Environmental Planning: A Political and Philosophical Analysis. Routledge, London.
12. McLean, William and Pete Silver (2021). Environmental Design Sourcebook: Innovative Ideas for a Sustainable Built Environment. RIBA Publishing, London.

Course Code	As per Institutional Policy
Nature of Course	Major EP – 22
Course Title	ENVIRONMENT MONITORING AND ASSESSMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the air quality monitoring and assessment, air pollution sources, standards; water pollution, land/soil pollution, noise pollution, etc.
- to understand monitoring process on continuous basis and develop and identify indicators for assessment.

Course Contents

Unit 1: Air Quality Monitoring and Assessment

Air Pollution-sources, causes/pollutants and their effects, emission sources, vehicular emissions, techniques of monitoring of emissions, emission standards, and ambient air quality. Concepts of relevant meteorological parameters, and interpolation of data, wind system measurement, turbulence; mixing height, plume use, dispersion, and dispersion models.

Unit 2: Water Quality Monitoring and Assessment

Water Pollution – sources, water quality tests, minimum standards of disposal (for different uses), performance criteria.

Unit 3: Noise Quality Monitoring and Assessment

Noise Pollution- sources, techniques of measurement, noise level standards, noise levels.

Unit 4: Land / Soil Characteristics, Pollution Monitoring and Assessment

Land Pollution -sources, soil erodibility tests, minimum standards of disposal (minimum standards for different uses), performance criteria.

Course Outcomes: Upon the completion of this course, the students will be able

- to come out with indicators for pollutions: air, water, and land; and can monitor and assess the extent of pollution and how to control the same.

References:

1. Shukla S.K. and Srivastava PR. (1992). Methodology of Environment Monitoring and Assessment. Commonwealth Publishers, Delhi.
2. Singh Vimala and Deepika Saini. (2021). Environmental Monitoring: Approaches and Perspective. Immortal Publications, Vijayawada.
3. Agnihotri Vasudha, Sumit Rai, Ashutosh Tiwari. (2021). Monitoring and Assessment of Environmental Parameters. GB Pant National Institute of Himalayan Environment, Dehradun.
4. Wani Khursheed Ahmad (2024). Sensors for Environmental Monitoring, Identification, and Assessment. IGI Global Scientific Publishing, Pennsylvania.
5. Gemitzi A., Nikolaos Koutsias, Venkat Lakshmi (2020). Advanced Environmental Monitoring with Remote Sensing. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Minor EP – 21
Course Title	ENVIRONMENT ECONOMICS AND AUDITING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the concepts on interface between environment and economics; common property rights, environmental valuation, concept of green growth; accounting and costing for environment; and various valuation methods.

Course Contents

Unit 1: Environment and Economy

Environment & Economy; Pollution and Externalities; Common Property Rights; Concept of Total Economic Value; Direct and Indirect Methods of Environmental Valuation; Methods of Pollution Control and Environmental Policy; Sustainable Development; Concept of Green GDP.

Unit 2: Accounting and Costing

Financial Accounting, An Overview: Basic Finance concepts, Different facts of Accounting and Finance; Financial Accounting Process; Books of Accounts; Introduction to Costing and Cost Management, An Overview: Basic cost concepts, Cost determination process, job costing and process costing, marginal costing, budgetary control; Cost control and cost reduction

Unit 3: Valuation Methods

Uses of monetary valuation; Cost Benefit Analysis, National Resource Accounting, Pricing, Non-use Value, Techniques of monetary evaluation / valuation methodologies; Economic approaches of measuring sustainable development; Measuring wealth, modifying GNP, savings, technological Change, Social Capital, Property right, Common property, creating global markets; Environmental Certification, Performance evaluation, Environmental Auditing, Eco-labelling, ISO.

Unit 4: Financing Environment

CFC: Role of Forest and conservation of green areas weightage in devolution, SFC, Local Government Finance for Climate Funding; Bilateral and Multi-Lateral Source of Funding for Climate Change; Green Bonds; Private Funding.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate economics-environment interface and how to prepare the environment accounting, work on green growth development, and the process of carrying out environment valuation for environmental projects.

References:

1. Singh Katar and Anil Shishodia. (2007). Environmental Economics, Sage Publications Pvt Ltd., New Delhi.
2. Phaneuf J Daniel and Requate Till. (2016). A Course in Environmental Economics: Theory, Policy and Practice. Cambridge University Press, Cambridge.

3. Hanley Nick, Jason Shogren, and Ben White. (2013). Introduction to Environmental Economics. Oxford University Press, Oxford.
4. Muthukrishnan Subhashini. (2024). Introduction to Environmental Economics. Prentice Hall, New Jersey.
5. Karpagam, M. (2023). Environmental Economics. Sterling Publishers Pvt Ltd., New York.
6. Lin Chi-Ang Brian and Siqi Zheng. (2021). Environmental Economics and Sustainability. John Wiley, New Jersey.
7. Wiesmeth H. (2022). Environmental Economics: Theory and Policy in Equilibrium. Springer, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Minor EP – 22
Course Title	POLLUTION MANAGEMENT AND SETTLEMENT PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand about water treatment, SWM, Air and noise pollution control measures, storm water management, safety and health in the field of planning.

Course Contents

Unit 1: Water Treatment, Supply and Management

Water sources, type, quality, standards for supply and distribution. treatment methods and rain water harvesting

Unit 2: Waste Water Treatment and Solid Waste Management

Introduction to waste water treatment, Primary Waste Water Treatment, Secondary Waste water Low-cost treatments, Decentralized systems; Solid waste generation, collection, and disposal systems

Unit 3: Air and Noise Pollution Control

Air pollution sources, Standards, Control technology for particulate matter and gaseous pollutants, Noise pollution sources, Standards, Permissible noise levels in different land uses; Noise pollution control at source; Flooding and water problems, run off calculations, storm water Management

Unit 4: Safety, Health and Environment

Indoor pollution and occupational health, Perspectives and concern, development projects and related aspects of safety and health; Toxicology- basic concepts, evaluation of toxicity, methods used to assess toxicology and categorization of toxic materials Identification of potential safety and health hazards in industrial and development projects, reduction strategies, policies and legislation, safety standards and management systems, ISO 18000, industrial health safeguards

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate applicability of water treatment, SWM, air and noise pollution and mitigation strategies in the urban and regional context.

References:

1. Chauhan Avnish. (2019). Environmental Pollution and Management, Wiley India, Delhi.
2. Housing and Urban Affairs, Ministry. (2014). URDPFI Guidelines, Volume I (2), Ministry of Housing and Urban Affairs, Government of India.
3. Rostron Jack. (2018). Environmental Law for the Built Environment. Taylor and Francis Ltd, London.
4. Board Central Pollution Control. (2021). Pollution Control Acts, Rules and Notifications, 7th Edition, Central Pollution Control Board, Ministry of Environment and Forest, Government of India.

5. Kumar Vinod, Nitin Kamboj and Temin Payum (2020). Advances In Environmental Pollution Management: Wastewater Impacts and Treatment Technologies. Agriculture and Environmental Science Academy, Haridwar.
6. Bhatia H.S. (2022). Environmental Pollution and Control. JDM Publishers & Distributors, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO–2A QUANTITATIVE METHODS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the quantitative methods (statistical tools) and research methods to help them in their studio and thesis.

Course Contents

Unit 1: Introduction to Statistics, Organising Surveys & Data Collections

Statistics, Functions of Statistics, Applications and Limitations of Statistics; Organising a statistical survey: Techniques of data collection, choice of frame, Degree of accuracy desired, Design of forms, field investigators; collection of Data: Primary and Secondary Data, Drafting the questionnaire, Sources of Secondary data, Editing primary and secondary data.; Census of India tables and its usage in planning; CSO/NSSO/NFHS data and its usage in planning; linking Census of India to NSSO tables.

Unit 2: Sampling, Sample Designs and Classification & Tabulation of Data

Census and Sample Method; Theoretical basis of sampling, Methods of sampling, Size of sample; Classification and Tabulation of data: Meaning and classification of objectives, types of classification, Frequency Distribution; Tabulation of Data: Difference between classification and tabulation, types of tables; soft wares for tabulation.

Unit 3: Measures of Central Value, Dispersion & Skewness, Moments, Kurtosis

Types of Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, General limitations of average. Measures of Dispersion: Measuring Variation: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variations, Chebyshevs theorem, Lorenz curve. Difference between dispersion and skewness, measures of skewness, Moments, Sheppard s correction; Kurtosis.

Unit 4: Correlations and Regressions

Correlation and Causation; types of correlations, Partial and multiple correlation, scattered diagram method, Graphic method; Karl Pearson coefficient of correlation; Probable Error; Coefficient of Determination, Rank Correlation, Concurrent Deviation method. Regression: Regression lines, Regression Equation; Regression equations in case of correlation table, Standard Error of Estimate. Time Series: Measurement of Trend, Seasonal, cyclical, and irregular variations. Introduction to Interpolation and Extrapolation.

Course Outcomes: Upon the completion of this course, the students will be able

- to by completing this course, a student will be able to use the statistical tools for design surveys, analysing the urban and its region data, projections for preparation of Master Plan.

References:

1. Gupta S. P. (2024). Statistical Methods. Sultan and Chand, Delhi.
2. E. Reid and Keunhyunk Park. (2020). Basic Quantitative Research Methods for Urban Planners. Routledge, London.
3. Anusha Illukkumbura (2020). Introduction to Regression Analysis. Amazon Digital Services LLP.
4. Lohr Sharon L. (2022). Sampling Design and Analysis. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO-2B ENVIRONMENT PLANNING
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand plan formulation for addressing environmental issues of an urban area.
- to understand preparation of baseline data, application of environmental assessment methods, and formulation of development plans with focus on an environmental issue.

Course Contents

The students will undertake Air Quality Assessment and Monitoring; Water Quality Assessment and Monitoring; Noise Quality Assessment and Monitoring; Soil Testing Assessment and Monitoring for an area. They will be exposed to sampling, laboratory testing, exposure to handy equipment, laboratory file and manual maintenance.

Course Outcomes: Upon the completion of this course, the students will be able

- to have experience to execute environmental monitoring and assessment.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major EP – 31
Course Title	ENVIRONMENT IMPACT ASSESSMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the screening and scoping, baseline, methods of EIA, public participation in EIA, assessment of development projects.
- to understand about the world bank, Asian development bank and other donor agencies and their EIA assessment mechanism for various project for funding.

Course Contents

Unit 1: Introduction to EIA

Concept of Environment, Concept of EIA; Origin and Development, Evolution of EIA in India: Constitutional Provisions and Policy Regulations

Unit 2: EIA Concepts and Procedures

Screening and Scoping Baseline Studies for EIA Environmental Settings; Impact Prediction and Evaluation; Methods of EIA; advantages and limitations Documentation and Monitoring; EIA Effectiveness,

Unit 3: Social Dimensions of EIA

Social Appraisal of Projects from environment point of view, dimensions, and stages; EMPs; Environmental Impact Factors and Areas of Consideration Public Participation in EIA; definition and concepts, objectives, techniques, advantages and limitation, PRA techniques; Case studies

Unit 4: Assessment Methods for Projects

Assessment of development projects (including roads, industries, housing, townships etc.). Exposure to Project specific TOR s and EIA Manuals, relevant notifications

Course Outcomes: Upon the completion of this course, the students will be able

- to carry out EIA for any projects in spatial planning and assess it from the environment point of view.

References:

1. Gilpin Alan. (1994). Environmental Impact Assessment. Cutting Edge for the 21st Century. Cambridge University Press, Cambridge.
2. Kulkarni V.S., S.N. Kaul, and R.K. Trivedy. (2002). A Handbook of Environment Impact Assessment. Scientific Publishers, New Delhi.
3. Yerramilli Anjaneyulu and Valli Manickam. (2020). Environmental Impact Assessment Methodologies. Bright Sky Publications, Delhi.
4. Barthwal R.R. (2020). Environmental Impact Assessment. New Age International Publishers, Delhi.
5. Kumar Arjun and A. Rathi (2022). Handbook of Environmental Impact Assessment: Concepts and Practice. Cambridge Scholars Publishing, England.
6. Bhateria R., Mona Sharma, Rimmy Singh and Sumit Kumar (2024). Environmental Impact Assessment: A Journey to Sustainable Development. Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Major EP – 32
Course Title	ENVIRONMENT PROTECTION AND MANAGEMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the fundamentals of SDG, QoL, Social Justice, poverty, gender along with their toolkits and indicators; public health and development, environmental governance including judicial activism, National Green Tribunal, and its function, CBNRM, sacred groves, and cultural landscape.

Course Contents

Unit 1: Sustainable Development and Human Environment

Concepts of Sustainable Development, Quality of Life, Social Justice, Poverty, Gender and Livelihood issues, Conflicts, and pressures. Development Goals, Toolkits and Indicators for sustainable settlement planning, Natural Resources management perspectives, Ecological Footprint

Unit 2: Public health and development

Health and Development linkages in the context of global landmarks and looking beyond. Introduction to Public Health, Institutes and Approaches. Overview of global health and well-being in the global context, emphasizing on current status in different region/ countries from Asia, Latin America, African continents Primary health care to MDG to Social Determinants of health: Healthy city Concept

Unit 3: Environmental Governance

National Instruments of Governance; Hierarchy of statutory bodies and their mandates, financial powers; Judicial Review and the Indian Constitution, Judicial Activism and Public Interest Litigation Principle of sustainable development, Precautionary principle, Polluter pays principle, public trust doctrine, Principle of absolute liability

Unit 4: NGT, CBNRM and other Traditional Ecological knowledge Governance

The National Green Tribunal, need for special environmental courts, Jurisdiction, and powers of the National Green Tribunal Community Based Natural Resource Management (CBNRM); Environmental entitlements; Indigenous Knowledge and Natural Resource Management: Sacred Geography (sacred groves, cultural landscapes); Traditional Ecological Knowledge and Sustainable; Resource Use; Case Study - Shifting Cultivation in North East India; Case Study - Water Resource Management in Rajasthan

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate SDGs, QoL, Social Justice, inclusion, role of National Green Tribunal and their functions related to environment.
- to appreciate knowledge in the field of sacred groves, cultural landscape, and national indicators for inclusion.

References:

1. Dash MC. (2019). Concepts of Environmental Management for Sustainable Development, Wiley, Delhi.
2. White Marlon. (2017). Environmental Protection and Management, Larsen and Keller Education, New York.
3. Evans James and Craig Thomas. (2024). Environmental Governance, Routledge, London.
4. Narayana PS. (2022). The National Green Tribunal Act: 2010. Gogia Law Agency. Hyderabad.
5. Theodore K, Theodore Louis. (2021). Introduction to Environmental Management, Wind Edition, Taylor and Francis Ltd, London.
6. Baldwin V (2022). Environmental Protection and Management. Murphy & Moore Publishing, New York.

Course Code	As per Institutional Policy
Nature of Course	Minor EP – 31
Course Title	PROJECT PLANNING AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: *The student will be enabled*

- to understand different techniques of project formulation, monitoring and evaluation of urban and regional projects.

Course Contents

Unit 1: Introduction to Detailed Project Appraisal, Project Cycle and Stages of Appraisal

Relevance of Project in Metro urban region planning, Identification, project cycle, Urban Planning and project appraisal; Stages of Appraisals: Financial, Economic, Social, Institutional and Environmental appraisals; Sensitivity Analysis of each of these appraisals; Use of Software for Project Appraisal.

Unit 2: Detailed Project Report (DPR)

Definition of DPR, content in DPR: step by step process, Project Background, Feasibility study approach: (Pre-implementation stage, implementation stage, and post-implementation stage, types of surveys to be carried out for DPR, team mobilization for DPR making; Financial section of DPR: Fundamentals of audit, costing, and budgeting of urban planning related projects. Processes involved in financial planning, including the preparation and analysis of budgets, cost estimation, and financial audits; The role of stakeholder contributions in project financing and management, and strategies for managing emergency risk funds.

Unit 3: Detailed Project Report (DPR) for Utility Project for a neighbourhood /precinct/Industrial Township/Infrastructure Project

A case study of a neighbourhood to prepare a step-by-step detailed project report for electricity, water supply and conservation including water treatment plant, rainwater harvesting, Sanitation; Solid Waste Management and policy frameworks using GIS.

A case study on an existing planned industrial township or a large-scaler regional projects, infrastructure project, single sector vs mixed industries, Industrial corridor projects, the role of NITI Aayog, role of GIS in projects.

Unit 4: Project Monitoring and Evaluation

Project Monitoring and Evaluation: Network analysis (CPM, PERT), Software for Project Monitoring and Evaluation. Types of Evaluation: Concurrent and Post: Impact Evaluation. Report Skills for Project Evaluation and Project Closures.

Course Outcomes: *Upon the completion of this course, the students will be able*

- to formulate project proposals with various stages, implementation, monitoring, and evaluating urban and regional planning projects at various scales.
- to demonstrate skills for the preparation of detailed reports of planning and development projects.

References:

1. Dasgupta Partha, Sen Amartya and Marglin Stephen (1972). Guidelines for Project Evaluation. UNIDO, Vienna.
2. Hansen R (1986). Guide to Practical Project Appraisal Social Benefit-Cost Analysis in Developing Countries. UNIDO, Vienna.
3. Heng-Kang Sang, Avebury (1995). Project evaluation: Techniques and practices for developing countries. University of California, USA.
4. IPE and Tamil Nadu Infrastructure Services Limited (2009). Project Appraisal Manual: Capacity Development of National Capital Region Planning Board (NCRPB) for Asian Development Bank. NCRPB, New Delhi.
5. Prasanna Chandra. (1995). Projects: Planning, analysis, selection, implementation and review. Mc Graw Hill Publications, New Delhi.
6. Kerzner Harold R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, New Jersey.
7. Albert Lester (2007). Project Management, Planning and Control. Butterworth Heineman Publications, England.
8. Dragan Z. Milosevic. (2003). Project Management Tool Box: Tools and Techniques for the Practicing Project Manager. John Wiley & Sons, Amazon Publishing house, New York.
9. Taliercio Robert and Eduardo Andres Estrada (2020). Best Practices in Project Appraisal and Selection: How Strong Infrastructure Governance Can End Waste in Public Investment. IMF, Washington DC.
10. Asian Development Bank (2024). Project Performance Evaluation Report for Secondary Cities Development Project. Manila.
11. Bansal Vijay (2023). Project Management: Planning and Scheduling Techniques. Taylor & Francis, New York.
12. Garg Ajay (2024). Preparation of Detailed Project Report (DPR) and Techno-Commercial Feasibility Report (TCFR). Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Minor EP - 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Quantitative and Qualitative Research and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO -3IB ENVIRONMENT MANAGEMENT PLAN
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the preparation process of Environment Management Plan/ Conservation Plan for a City/Region

Course Contents

Course will go into the preparation of an Environment Management Plan for a city/region. It will cover different dimensions of environment: built up and non-built up, and natural environment.

Course Outcomes: Upon the completion of this course, the students will be able

- to prepare an Environment Management Plan for a city/region.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
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Nature of Course	Major EP – 41
Course Title	ENVIRONMENT AND PLANNING LEGISLATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand law and constitution of India; environment Act of 1986, and Acts related to Air, Water, Mining, Factories, Wildlife, Forest; Ancient Monuments and Archaeological sites, Rules and Regulations related to SWM, Protocols related to environment; and Town and Country Planning Act, and the concept of arbitration and 73rd and 74th CAA.

Course Contents

Unit 1: Environmental Legislation

Introduction to Law (Indian Constitution, Evolution of Environmental Laws in India) EP Act 1986; Air (Prevention and Control of pollution) Act Water (Prevention and Control of pollution) Act Mines and Mineral Act; Factories Act Pesticides Act Indian Forest Act Wildlife Act; Ancient Monuments and Archaeological Sites and Remains Act Hazardous Waste Management and Handling Rules / Biomedical Rules / Solid Waste Management Rules; Environment Tribunal Act; Climate change Protocols and Conventions MOEF Guidelines and Notifications Appellate Authority Act and Other related Notifications

Unit 2: Planning Legislation

Concept of Law: Source of law (i.e., custom, legislation and precedent), meaning of terms of law, legislation, ordinance, Bill, Act, Regulations and Bye-laws.; Significance of law and its relationship to Urban planning benefit of statutory provisions- eminent domain & police powers.

Unit 3: Indian Constitution

Concept and contents, provisions, regarding property rights, Legislative competence of state and central Government to enact town planning legislation.; 73rd and 74th Amendment Act; Evolution of Planning legislation. An over view of legal tools connected with Urban Planning and Development, Town and Country Planning Act, Improvement Trusts Act, Urban Planning and Development Authorities Act -objectives, content, procedures for preparation and implementation of regional plans, Master Plans and Town Planning schemes

Unit 4: Arbitration and Land Development Controls

Concept of Arbitration; Betterment levy; development charges and public participation in Statutory planning process; Concepts of Structure Plan; local plan/and action plan under the English law. Land Acquisition Act 1884 - Basic concept, procedure for compulsory acquisition of property and determination of compensation.; Urban land (Ceiling and Regulation) Act 1976 – objectives, contents, and planning implications.; Significance of Land Development Control – objectives, contents and legal tools, critical evolution of zoning, sub-division regulations, building regulations and bye-laws, Development Code, Zoning law and law relating to periphery control.; 73th and 74th Constitutional Amendment Act, 1992.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the intricacies of environment and laws in various dimensions and how to use it for regulating safe guard the environment at various levels.

References:

1. Divan Shyam and Armin Rosencranz. (2022). Environmental Law and Policy in India: Cases and Materials: 3rd Edition. Oxford India, New Delhi.
2. Narayana PS. (2022). The National Green Tribunal Act: 2010. Gogia Law Agency, Hyderabad.
3. Doabia TS. (2023). Environmental and Pollution Laws in India: 3 Volumes. Lexis Nexis Publishers, Gurugram.
4. ProBono India. (2020). Landmark Judgements on Environment Protection Law and Justice. Publishing Company, Cochin.
5. Beg Juned Mirza and Mohd Sufiyan Khan. (2022). Environmental Jurisprudence in India. Book Rivers, Lucknow.

Nature of Course	Major EP - 42
Course Title	RESILIENT CITIES
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand information on low carbon cities, sectoral action, and financing for low carbon cities.
- to understand the best practices that gives co-benefits approach, low carbon strategies, and adaptation and mitigation strategies.

Course Contents

Unit 1: Introduction to Low Carbon Cities

Background of Low Carbon Cities Framework definition of Low Carbon Cities Sustainable Framework for Low Carbon Cities International Conventions to reduce GHG-UNFCCC Global Anthropogenic GHG Emissions in 2004 Global Agreements and Targets

Unit 2: Sectoral Action for Low Carbon Cities

Energy; The Low-Carbon; Liveable Cities Tools; Carbon calculators; Strategies for creating low carbon cities; UNEP frameworks.

Unit 3: Financing Low carbon cities

Urban Resilience; A framework for Low Carbon for Local Government; Green Finance; Green Investment Banks; Role of private sector finance.

Unit 4: Best Practices

Aligning climate and development, the co-benefits approach best practices for low carbon cities, Adaptation and Mitigation Strategies Low carbon strategies.

Course Outcomes: Upon the completion of this course, the students will be able

- to know the policies and its application for resilient cities.

References:

1. Rasik, R and R. Sinha (2013). Earth system processes and disaster management. Springer, New York.
2. Singh, T. (2006). Disaster Management Approaches and Strategies. Akanksha Publication House, New Delhi.
3. Edwards. B. (2005). Natural hazards. Cambridge University press, Cambridge.
4. Sharma, R.K and G. Sharma. (2005). Natural disasters. APH Publishing, Delhi.
5. Bhandani, R.K. (2005). An overview on Natural & Manmade Disaster & their Reduction. CSIR, New Delhi.
6. NDMA. (2005). National Disaster Act. Government of India.
7. Singh, S. (2003). Disaster Management in Hills. Concept publication Co, New Delhi.
8. Goel, S.L, and Kumar, R. (2001). Disaster Management. Deep and Deep Publications, New Delhi
9. Gupta, M.C. (2001). Manuals on Natural Disaster Management in India., National centre for Disaster Management, IIPM, New Delhi.

10. The World Economic Forum (2023). Seizing the momentum to build resilience for a future of sustainable inclusive growth. The World Economic Forum with McKinsey and Company, Switzerland.
11. The World Economic Forum (2024): The Global Risks: Report 2024, 19th Edition Insight Report. The World Economic Forum in partnership with Marsh McLennan and Zurich Insurance Group, Geneva, Switzerland.
12. Goldar Amrita, Jain Sajal, Das Gupta Diya. (2024). Estimating Loss and Damage from Climate: Induced Disasters: An Evaluation using ICRIER “PRAKRITI” Model. ICRIER, New Delhi.
13. Therese Lawson (2024).The Resilient City: How Cities Can Adapt to Climate Change. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Minor EP - 41
Course Title	CLIMATE CHANGE AND MITIGATION
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to be incorporated in the area of: Climate Finance (local, national, bilateral, multi-lateral or transnational financing) drawn from various sources (such as public, private, or alternative sources) for mitigation and adaptation actions to address climate change. The knowledge of: deliberations, collaborations and contestations as emerging for climate fund commitment from Kyoto Protocol and in subsequent Climate Change Conference (COP 29) to tackle the climate change in their countries, will be shared to the students.
- to address the dimensions and spells out the components of COP, commitments, goals and corresponding funding, and sources.

Course Contents

Unit 1: UN Climate Change Conference

UN Conference on Climate Change – Kyoto Agreement, Paris Agreement, Members Call – Global Warming, Greenhouse gas emissions and targets, Nationally Determined Contributions (NDCs), Long-Term Strategies: LT-LEDs, Technologies, Capacity Building and Enhanced Transparency Framework (ETF).

Unit 2: India: Climate Change Commitments and Alliances

Indias experience: heat islands and built-up urban areas, frequent floods, landslides, droughts, and depletion of ground water, glacier Melt, sea level raise, agriculture and food security, energy security, water security, Health and Conflicts; International Solar Alliance, Big Cat Alliance, Infrastructure for Resilient Island States (IRIS), IPCC, COP: India's Panchami. Mission Life. GREEN DEVELOPMENT PACT, CDRI, Lead IT, G20.

Unit 3: Tools to tackle Climate Change in India

NDC, Green House Gas Emissions (GHG), 5 Pillars: Global Renewable Energy, Energy Efficiency Improvement, for Reduction of Emission Intensity, Non-Fossil fuels and blending, Innovative, large-scale financing measures, RBIs role to address Climate Change and mitigation strategies.

Unit 4: Targets and Achievements

Sector Targets for Climate Change and their policies, CoP targets and India's Targets, Achievements by India so far. Third National Communication based on GHG inventory, Adaptation Communication; Emission Intensity and GDP, Solar Incentives, New Collective Quantified Goal and resource mobilisation for climate funding; RBIs Disclosure framework on Climate -related financial risks: 4 key areas- governance, strategy, risk management and metric and targets.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the global guidelines in the field of climate change and its progress.
- to physical and financial commitments at global level.
- to India's Climate Change Policy and sectoral targets and achievements.

References:

1. Council Prime Ministers (2008). National Action Plan on Climate Change. Government of India, New Delhi.
2. Forum Climate Modelling, India. (2009). India's GHG Emissions Profile: Results of Five Climate Modelling Studies. Ministry of Environment and Forests, Government of India, New Delhi.
3. Ministry of Environment and Forests. (2024). For each States Action Plan for Climate Change.
4. Ministry of Environment and Forests. (2024). Engaging with the Green Climate Fund: A digital toolkit for India, Ministry of Environment and Forests, Government of India.
5. Reserve Bank of India. (2023). Report on Currency and Finance 2022-23: Towards a Greener Clearer India. Department of Economic and Policy Research, Reserve Bank of India, Mumbai.
6. Lackner M., Baharak Sajjadi and Wei-Yin Chen (2020). Handbook of Climate Change Mitigation and Adaptation. Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

- Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting, and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.6.: Two-Year M. Plan/ M. Tech (Housing)

Programme Objectives

- To expose and familiarize the students with the multifaceted nature of the housing sector within the broader context of human settlement and town planning.
- Equip the students with specialized skills and knowledge to understand and address the complexities of housing and urban development.
- To stimulate research interest and foster academic exploration, encouraging students to delve deeper into various topics for further study.
- To prepare the students for diverse career opportunities, enabling them to take on roles in government, parastatal organizations, corporate industries, community-based organizations, NGOs, or pursue professional private practice.

Course Outcomes

- To achieve an all-rounded perception into the students about the spatial structure of a city into the multi-dimensional and dynamic aspects of it.
- To initiate the students into the key elements of city planning: "what," "where," "why," and "how" in the urban development strategy, apart from acquiring the skills to apply different tools and techniques necessary for effective planning.
- To attain ability to explain the problems facing the worldwide and local housing industries in detail.
- To be able to critically analyze and come up with solutions to housing issues across different contexts. There will be better expertise to develop strategic plans and housing projects that are both sustainable and contextual in nature at the course.
- To develop awareness of best practices in the housing sector and be equipped with the ability to work within an interdisciplinary environment and strengthen ways of collaboration across different fields.
- To develop confidence and expertise required to undertake independent work to equip them for wide-ranging professional opportunities in urban planning and housing development.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (HOU-21)	Urban and Rural Housing Policies and Programmes	2	1	0	3
	Major (HOU-22)	Housing Standards, Design and Projects	2	1	0	3
	Minor (HOU-21)	Sustainable Materials and Technology	1	1	0	2
	Minor (HOU-22)	Housing Finance	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Housing Survey Techniques	0	0	4	2
		Planning Studio – 21B Housing Options and Strategy	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (HOU-31)	Real Estate and Housing Markets	2	1	0	3
	Major (HOU-32)	Informal Housing, Slums and Poverty	2	1	0	3
	Minor (HOU-31)	Urbanization and Land Management	1	1	0	2
	Minor (HOU-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Housing Scenario of a Mega City	0	2	0	2
		Planning Studio – 31C Project Formulation and Design	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (HOU-41)	Governance and Management for Housing	2	1	0	3
	Major (HOU-42)	Legislation and Professional Practice	2	1	0	3
	Minor (HOU-41)	Housing for Special Areas	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Integrated First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major HOU - 21
Course Title	URBAN AND RURAL HOUSING POLICIES AND PROGRAMMES
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the basic premises for policy preparation and content of housing policies and programmes.
- to familiarize with the real world issues and evaluate success and failure of policies and programmes

Course Contents

Unit 1: Introduction

Urban and Rural Housing Policies and its role in national development; Objectives of policy in relation to settlement planning; Basic components of housing policy and programmes formulation in urban and rural areas; Housing policies in India and abroad: its impact and consequences on housing development; Housing policy and their focus in different developing and developed countries: their significance in provision of housing programmes for low-income groups, their formulation implementation and evaluation role of international and national funding agencies in housing programmes special housing programmes in different countries.

Unit 2: Housing in Rural India

Socio-economic profile of rural India and rural housing conditions; Types of traditional building materials and construction methods; House types; Rural housing norms; Standards and design; Access to infrastructure; Improvement in quality of life in rural areas; Rural health and sanitation; Environmental improvement in villages; Concept of integrated rural housing development; Rural housing schemes; Impact of large development projects and community development in rural areas; Special needs for housing for tribal.

Unit 3: Global Overview

Review of urban and rural housing policies in developed and developing countries with case studies from Asian countries.

Unit 4: Policies and Programmes

Housing policies and programmes by the central and state governments.

Course Outcomes: Upon the completion of this course, the students will be able

- to gain understanding of the foundational concepts and principles guiding housing policies and programs.
- to identify and analyse key housing issues, such as affordability and access, within various contexts.
- to develop skills to assess the success and failure of housing policies by examining detailed case studies.
- to utilize analytical tools to measure and interpret the effectiveness of housing policies.
- to formulate and recommend practical improvements to housing policies based on comprehensive evaluations and emerging trends.

References:

1. Ministry of Housing and Urban Poverty Alleviation. (2007). *National Urban Housing and Habitat Policy*, Government of India, New Delhi.
2. Glaeser Bernhard. (1995). *Housing, Sustainable Development and Rural Poor*. Sage, New Delhi.
3. Friedrichs, J. (1988). *Affordable Housing and the Homeless*. Walter de Gruyter and Co, Berlin.
4. Rao, P.S.N. (2005). *Urban Governance and Management*. Kanishka Publication and IIPA, New Delhi.
5. Albrecht E. Don, Scott Loveridge and Stephen Goetz and Rachel Welborn. (2018). *Rural Housing and Economic Development*. Routledge, London.
6. Bhattacharya Rajesh and Annapurna Shaw. (2021). *Urban Housing, Livelihoods and Environmental Challenges in Emerging Economies*. Orient Blackswan Pvt. Ltd., Hyderabad.
7. Sengupta Urmi, Annapurna Shaw and Debolina Kundu (2024). *Housing India: Programmes, Policies and Governance*. Routledge, London.
8. Singh Katar and Anil Shishodia (2024). *Rural Development: Principles, Policies and Management*. Atlantic Publishers and Distributors Pvt. Ltd., New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Major HOU - 22
Course Title	HOUSING STANDARDS, DESIGN AND PROJECTS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand neighbourhood planning, design standards with significance to housing.
- to understand technique of site analysis and development controls required for plotted development and group housing.

Course Contents

Unit 1: Introduction

Neighbourhood planning; design standards and their significance in housing process; Socio-economic and aesthetic; Environmental factors affecting layouts; Various concepts of layout planning; Row and multi storied housing; Layout optimization techniques, appropriate DU design.

Unit 2: Site Planning

Site analysis; Visual design factors; Consideration for infrastructure; Organization of space; Criteria for location of blocks and landscape elements; Energy efficient design; Methodology for formulation of housing projects; Design considerations in housing projects.

Unit 3: Infrastructure Design

Detailed analysis on water supply, sewerage, drainage solid waste disposal, electricity, roads and transportation and all community facilities; Standards for physical and social infrastructure layouts; Development controls and phasing; Specific consideration for plotted development and group housing; Site and services project.

Unit 4: Case Studies

Case studies of government and private housing projects; Global housing standards, designs and project case studies.

Course Outcomes: Upon the completion of this course, the students will be able

- to implement principles and guidelines for creating well-designed and functional residential neighbourhoods.
- to perform thorough evaluations of site conditions, including environmental and infrastructure factors for design decisions.
- to gain knowledge of zoning laws and building regulations to guide plotted and group housing developments.
- to combine insights from planning standards, site analyses, and regulations to develop cohesive housing projects.
- to tackle real-world issues in housing projects, such as environmental constraints and regulatory compliance, effectively.

References:

1. Rohe William M. and Lauren B. Gates. (1985). Planning with Neighbourhoods. University of North Carolina Press, North Carolina.
2. Peterman William. (2000). *Neighborhood Planning and Community Based Development*.

Sage Publications India Pvt. Ltd., New Delhi.

3. Khanna P.N. (1999). *Indian Practical Civil Engineers' Handbook*. Engineers Publishers, New Delhi.
4. LaGro Jr. James A. (2008). *Site Analysis: A Contextual Approach to Sustainable Land Planning and Site Design*. John Wiley and Sons, Inc., Hoboken, New Jersey.
5. Levitt David and Jo McCafferty. (2018). *The Housing Design Handbook: A Guide to Good Practice*. Routledge, London.
6. Jones Mark Tewdwr and Nick Gallent. (2021). *Housing, Planning and Design*. Taylor & Francis, London.
7. Habinteg Housing Association (2024). *The Inclusive Housing Design Guide*. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Minor HOU - 21
Course Title	SUSTAINABLE MATERIALS AND TECHNOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to expose the students to traditional and conventional building materials.
- to understand cost reducing and environment friendly technologies for housing projects

Course Contents

Unit 1: Introduction to Materials and Technology

Building materials traditional and conventional; Low cost materials; Significance of technology for housing development: conventional technologies and modern technologies, appropriate technology; Technology for housing in the context of housing development in India and the third world.

Unit 2: Prefabrication and Industrialization and Construction Industry

Concept of prefabrication, industrialization and system building; Various open and closed systems; Choice of various systems of building; Concept of intelligent building; Organization of the construction industry in India; Significance of Housing construction industry: its characteristics and role of various factors involved; Small scale enterprises in the housing construction industry: building material manufacturers, sellers and small contractors; Significance of resources and manpower in housing construction; Need for imparting in housing building; Concept Nrimithi Kendras.

Unit 3: Cost Optimization

Cost reducing techniques; Environmental friendly technologies; Role of technology in housing projects formulation: cost time and other implications; Emerging technological perspectives for house construction, infrastructure and housing area planning.

Unit 4: Alternative Technologies

Role and significance of Physical infrastructure in housing development; Characteristics of various components of physical planning and design of infrastructure; Appropriate technology for infrastructure development: rain-water harvesting, use of solar energy, wind energy and other appropriate technologies; Role of BMTPC and other organizations in promotion of new and alternative technologies.

Course Outcomes: Upon the completion of this course, the students will be able

- to assess the performance, durability, and cost-effectiveness of these materials to determine their appropriateness for housing projects.
- to implement building technologies that provide value while staying within budget constraints, ensuring both efficiency and affordability.
- to use sustainable and eco-friendly technologies to minimize the environmental impact of housing projects, promoting green building practices.
- to create housing designs that effectively combine traditional materials with modern, sustainable technologies to achieve both economic and environmental benefits.

References:

1. BMTPC. Brochures of Building Materials and Technology Promotion Council (BMTPC). Government of India, New Delhi.
2. BMTPC. (2009). Directory of Indian Building Materials and Products. BMTPC, New Delhi.
3. Government of India. (2011). Report of High Powered Expert Committee for Estimating Investment Requirements for Urban Infrastructure and Services. Government of India.
4. Day Christopher. (2018). The Eco-Home Design Guide: Principles and Practice for new-build and retrofit. Green Books, New Delhi.
5. Keena Naomi and Avi Friedman. (2024). Sustainable Housing in a Circular Economy. Routledge, London.
6. Paul Foulkes-Arellano (2024). Materials and Sustainability: Building a Circular Future. Taylor and Francis Group Limited, London.

Course Code	As per Institutional Policy
Nature of Course	Minor HOU – 22
Course Title	HOUSING FINANCE
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the basic terminology and concepts of housing finance.
- to understand housing finance methodologies and emerging issues.

Course Contents

Unit 1: Economic, Social and Financial Environment

Economic, Social and Financial environment at the national level, financial system and regulation; Housing economics; Characteristics of housing finance; Policy for housing finance in national plans.

Unit 2: Sources and Methods of Financing

Sources of finance; Public and private sector investment in housing; Finance in urban and rural sector implications of long-term and short term financing; Fiscal aspects of subsidizing public and private housing; Housing finance requirements of economically weaker sections; Methods of financing; Specialized finance institutions; Mortgage financing systems; Non-institutional financing; Present trend in housing finance in India and in other countries; Fiscal incentives in annual budgets; Direct and indirect tax proposals.

Unit 3: Roles of Organizations

Role of HUDCO, NHB, HFIs; Various international donor/financing agencies; Micro finance institutions; Rural housing finance.

Unit 4: Projects and Financial Feasibility

Financial feasibility of projects; Various financial instruments; Concepts of IRR and NPV; Basics of cash flow analysis; Financial structuring of projects; Preparation of DPR.

Course Outcomes: Upon the completion of this course, the students will be able

- to learn the essential terms and principles of housing finance
- to analyse and compare various financing methods, assessing their effectiveness and suitability for different contexts.
- to recognize new developments and issues in housing finance sector
- to make informed decisions in financial planning and management.
- to develop strategies and recommendations to address current and future challenges in housing finance, aiming to enhance accessibility and sustainability.

References:

1. Watanabe Masakazu. (2000). New Directions in Asian Housing Finance IFC. World Bank.
2. Subbulakshmi V. (2004). Housing Finance in India. ICFAI University Press, Hyderabad.
3. Kothari V. (2017). Guide to Housing Finance: A Comprehensive and Analytical Commentary on Mortgage Lending. Lexis Nexis, Gurgaon.
4. Lewis James P. (2023). Project Planning, Controlling and Scheduling. McGraw Hill. New York.
5. Baxamusa M. (2020). A New Model for Housing Finance: Public and Private Sectors Working Together to Build Affordability. Taylor and Francis Group, London.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO–2A HOUSING SURVEY TECHNIQUES
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to learn the aerial photography, remote sensing, images geometry and conceptual models of spatial and non-spatial information system.

Course Contents

Using various remote sensing, drones, and other techniques including visual images/sketches are to be used with the assistance of the faculty to carry out the survey for assessing the various categories of housing conditions in a city. Students will be imparted socio-economic and other survey techniques and come out with a map incorporating all the dimensions of physical, social, economic and digital aspects in House development area.

Course Outcomes: Upon the completion of this course, the students will be able

- to learn the basics of aerial photography and remote sensing, including their techniques and how they are used to collect spatial data.
- to study the geometric properties of images, such as distortion and correction methods, to ensure accurate spatial representations.
- to understand and apply conceptual models for integrating spatial and non-spatial data
- to effectively combine spatial (geographic) and non-spatial (attribute) information to create comprehensive datasets and analyses.
- to apply knowledge of aerial imagery, remote sensing, and data models to analyse spatial data and solve practical problems.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO-2B HOUSING OPTIONS AND STRATEGY
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to appraise the students about estimating housing shortage, projecting alternative scenarios for housing development.

Course Contents

Based on previous assignment based on Surveys and techniques, in this studio students will be imparted techniques of scenario building for Housing area (layout/Township/city), housing data analysis and alternative options for a given solution. They will be helped to prepare a strategy from the alternatives they have simulated.

Course Outcomes: Upon the completion of this course, the students will be able

- to collect and evaluate data on demographics, development plans, economic background, policies, and tourism to gain a comprehensive understanding of the city's housing landscape.
- to undertake an in-depth analysis of the housing subsystem to estimate housing shortages and project future housing needs and demand.
- to create and explore alternative scenarios for sustainable housing development tailored to the city's unique challenges and opportunities.
- to develop a detailed housing development strategy that addresses existing shortages and anticipates future needs while promoting sustainability.
- to utilize insights gained from field visits and stakeholder engagements to inform strategy development, ensuring that the proposed solutions are practical and responsive to local needs.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L: -; T: -; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major HOU – 31
Course Title	REAL ESTATE AND HOUSING MARKETS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the basic definitions and concepts related to real estate legislation, planning and management and housing markets.
- to familiarize the students with the real world issues through case studies with particular reference to Indian cities.

Course Contents

Unit 1: Introduction

Introduction to real estate: definition, principles of real estate value concepts; Methods of valuation; Introduction to real property ownership; Leasing property succession; Methods of sale/ purchase; title search.

Unit 2: Investment and Laws

Real estate investment analysis and portfolio management; Foreign direct investment (FDI); Role of NRIs and PIOs in the investment market; Marketing and brokerage; Introduction to various laws related to real estate.

Unit 3: Real Estate Project Formulation

Real estate project formulation; Real estate development process; Asset management; Property insurance; Real estate case studies; Taxation and fiscal incentives; Government policies and industry organization; Public-private partnerships and JV'S; Rating; Risk assessment.

Unit 4: Housing Markets

Concepts and definitions; Housing market: area, the purpose and nature of housing market studies; Factors affecting housing prices; Housing market behavior; Estimation of housing need; Housing demand and identification of housing stress; Factors affecting local housing market; Housing demand and supply market process; Housing search residential mobility and filtering causes and consequences; Policy influence on housing market; The formal and informal housing markets and their impact on urban poor; Public, Co-operative and private sector housing market; Process and supply institutional framework.

Course Outcomes: Upon the completion of this course, the students will be able

- to gain foundational knowledge of real estate legislation, planning, management, and housing markets, including key terms and principles.
- to apply concepts related to real estate laws, planning processes, and management practices to various scenarios.
- to explore and interpret housing market dynamics, trends, and challenges, focusing on their impact on real estate development.
- to investigate and strategies for real-world issues and challenges in Indian cities.

References:

1. Ratcliff John. (3rd Edition). *Urban Planning and Real Estate Development*. Routledge, London.
2. Weimer Arthur M. and Homer Hoyt. (6th Edition). *Principles of Real Estate*. The Ronald Press Co., New York.
3. Grigsby William G. (1963). *Housing Markets and Public Policy*. Pennsylvania Press, Pennsylvania.
4. Ram Padmini. (2021). *The Affordable Housing Market in India: Institutional Constraints, Informal Sector and Privatization*. Taylor & Francis, London.
5. Dr. Adv. Savla Harshul. (2021). *Real Estate Laws: Compendium of Indian Real Estate Laws*. Notion Press Media Pvt Ltd, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Major HOU – 32
Course Title	INFORMAL HOUSING, SLUMS AND POVERTY
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the problems and issues of informal sector and their housing conditions.
- to understand various strategies of government and NGOs for the improvement of slums.

Course Contents

Unit 1: Overview of Informal Housing

Emergence and growth of Informal Housing in third world cities and formal regulatory framework; Diversity of housing needs of urban poor and informal housing options: pavement dwelling, squatting, illegal land-subdivision, inner-city organic housing, and urban villages, causes of growth and perpetuation and impacts of illegality.

Unit 2: Informal Economy

Linkages of informal economy-supportive policies of settlement upgrading and options of tenure security; Impacts and obstacles to regularization; Integrated and participatory improvement approaches.

Unit 3: Slums and Government Intervention

Process of slum formation: causes and consequences, approaches to tackle the challenge of slums, relocation, rehabilitation, in-situ upgradation, etc.

Unit 4: Civil Society and Poverty

Role of NGO's and CBO's in the improvement process; Dimensions of poverty and its manifestation in the housing sector, indicators, programmes specifically targeted towards slums and the urban poor, shelter less population.

Course Outcomes: Upon the completion of this course, the students will be able

- to identify and evaluate the problems and challenges faced by the informal sector, particularly regarding their housing conditions.
- to analyse specific housing conditions within informal settlements, including infrastructure, living standards, and access to services.
- to critically assess the effectiveness of different interventions and strategies used to address slum development and housing issues.
- to develop informed recommendations for improving housing conditions in the informal sector.

References:

1. Programme UNHS. (2003). *The Challenge of Slums Global Report on Human Settlements*. UN-Habitat. Earth scan Publishing, London.
2. Dr. Goswami D. (2012). *Housing and Urban Poverty Alleviation*. SAAD Publications, Delhi.
3. Sharma Kalpana. (2000). *Rediscovering Dharavi: Stories from Asia's Largest Slum*. Penguin Books, London.

4. Samal Kishor C. (2008). Informal Sector: Concept, Dynamics, Linkages & Migration Concept. Publishing Company, New Delhi.
5. Aldrich Brian C. And Ranvinder S. Sandhu. (2015). Housing for the Urban Poor in Developing Countries. Rawat Publications, New Delhi.
6. Reid J., Matthew French and Claudio Acioly Jr. (2014). A Practical Guide to Designing, Planning, and Executing Citywide Slum Upgrading Programmes. United Nations Human Settlements Programme, Kenya.
7. Grashoff Udo (2020). Comparative Approaches to Informal Housing around the Globe. UCL Press, London.
8. Panwar N.S. (2023). Urbanization, Migration, Slums and Poverty in India. Lambert Academic Publishing, Riga.

Course Code	As per Institutional Policy
Nature of Course	Minor HOU – 31
Course Title	URBANIZATION AND LAND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand urbanization with reference to Asia and Pacific.
- to understand land policies and various approaches for land management

Course Contents

Unit 1: Overview of Urbanization

Global population change and urbanization, Regional perspectives on population and urbanization with special reference to Asia and Pacific; Emergence of large cities; Impact of urbanization, globalization and economic policies.

Unit 2: Peculiarities of Land in India

The status of land in the Constitution of India; Peculiar nature of land markets; Factors affecting supply and demand of land for housing; Role of Fiscal policies and development regulations of land market.

Unit 3: Land Policies

Land policy objectives and policy options for public intervention; Techniques of land assembly and expropriation; Development components and financing land development; Institutional and political concerns in land management.

Unit 4: Types of Land Management

Various approaches viz. land pooling/land readjustment, TP Schemes; Public Private Partnerships for land assembly; Role of the private sector in land assembly; Land management thru' Township Policies of various state governments, international and domestic case studies.

Course Outcomes: Upon the completion of this course, the students will be able

- to study the patterns and growth of urbanization in Asia and the Pacific, focusing on population shifts and urban expansion.
- to evaluate the effects of urbanization on infrastructure, economic development, environmental sustainability, and social structures.
- to examine and critique land policies in urban areas to understand their effectiveness and implications for development.
- to investigate different land management strategies and practices, such as zoning and land use planning, and their impact on urban growth.
- to use insights from urbanization trends and land management to recommend strategies for achieving sustainable urban development.

References:

1. Sivaramakrishnan, K.C. (2005). Handbook of Urbanization in India. Oxford University Press, Oxford.
2. Wajahat Habibullah. (2005). Land Reforms in India. Sage Publications, New Delhi.
3. Soliman Ahmed M. and Ramin Keivani (2024). Innovations for Land Management, Governance, and Land Sustainable Urban Transitions. Springer, Berlin.
4. Mishra Gaurav, Krishna Giri, Sanjay Singh and Manoj Kumar (2024). Sustainable Land Management in India: Opportunities and Challenges. Springer Nature, Berlin.
5. Mathur O.P. and Rakesh Mohan (2024). Changing Paradigms of Urbanization: India and Beyond. Academic

Foundation, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Minor HOU - 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and methods of testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Qualitative and Quantitative research, and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, applications and validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3IA THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO-3IB HOUSING SCENARIO OF A MEGA CITY
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to learn the geo-spatial analysis, customization of geo-information.

Course Contents

Considering the scale of a metro/mega city, students will be trained to assess the demand for housing, existing quality of housing including slum housing, which areas within the city to assess, Renewal/Redevelopment Strategies and their applicability, and build a housing Scenario for the city. They will be trained to come out with product mix within housing sector (residential: EWS, LIG, MIG and HIGH) and where to place them as per social reengineering strategies.

Course Outcomes: Upon the completion of this course, the students will be able

- to integrate internet GIS and decision support systems (DSS) into planning and decision-making processes to enhance the efficiency and accuracy of spatial analyses.
- to gain an overview of open GIS platforms and customize geo-information systems to meet specific project needs.
- to apply knowledge of geospatial analysis and tools to the formulation and design of housing projects, incorporating relevant spatial data to improve project outcomes.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO- 3IC PROJECT FORMULATION AND DESIGN
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to undertake housing project involving site selection, analysis; project formulation and design of selected area.

Course Contents

Using the Project Formulation Appraisal, Evaluation and Monitoring techniques, students will be imparted the knowledge of developing a project till its implementation frame including design for a given area. This knowledge includes pricing policy, cross subsidisation, marketing, etc and ready to present to a client.

Course Outcomes: Upon the completion of this course, the students will be able

- to develop comprehensive project proposals including design, costing, and implementation strategies.
- to conduct feasibility studies
- to prepare a detailed case study report integrating findings from city and zone-level analyses, and propose actionable project and design solutions

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD- 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major HOU – 41
Course Title	GOVERNANCE AND MANAGEMENT FOR HOUSING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the role of the state in the housing sector at national, state and local levels.
- to learn how to prepare a fully integrated housing project from inception to implementation.

Course Contents

Unit 1: Introduction

Principles of good governance; Public governance in India; Overview of urban governance structure in India; Governance for the housing sector.

Unit 2: Organizations

Definition and concepts in organization; Factors affecting organizational structure administrative context of housing organization in India; Organizational theories and their effectiveness; Housing organizations in India at national, state and local level; Role of improvement trusts, housing boards, development authorities and slum improvement boards and cooperatives.

Unit 3: Partnerships

Role of private sector and NGOs; Role of financing agencies and linkages with other agencies; Relationship between housing and non-housing organizations; Internal administrative problems of housing agencies: public – private partnerships, joint ventures, organizational reforms and privatization; Outsourcing and contracts; Facility management.

Unit 4: Management Concepts and Project Management

Need for housing management; Basic elements of management, planning, organization, staffing, coordination and monitoring and its relevance of housing sector; Importance of leadership development, communication and motivation; National goals, political system affecting development management; Managing and monitoring housing projects; Participatory management processes and managing joint ventures; Post occupancy management of housing estates.

Course Outcomes: Upon the completion of this course, the students will be able

- to analyse the functions and impact of government at the national, state, and local levels in shaping housing policies, regulations, and initiatives.
- to develop skills to prepare a fully integrated housing project, covering all phases from inception through implementation.
- to utilize understanding of state roles to align housing projects with relevant policies and regulations at different governmental levels.
- to effectively manage the planning, design, and execution of housing projects, ensuring coordination between various stakeholders and adherence to regulatory requirements.
- to apply learned strategies to create cohesive housing solutions that address community needs, policy frameworks, and practical challenges in project implementation.

References:

1. Rhodes R.A.W. (1997). *Understanding Governance: policy networks, governance, reflexivity and accountability*. Open University Press, Maidenhead, GB, Philadelphia.
2. Pugh C. (2001). *The Theory and Practice of Housing Sector Development for Developing Countries – 1999*. *Housing Studies*, Vol.16, Issue 4, pp.399-423. Taylor and Francis, London.
3. Baud I.S.A. and J. Wit (2008). *New Forms of Urban Governance in India: shifts, models, networks and Contestations*. Sage, New Delhi.
4. Jayal, N.G., A. Prakash, and P.K. Sharma. (2006). *Local Governance in India: decentralization and beyond*. Oxford University Press, New Delhi.
5. Sengupta Urmi, Annapurna Shaw, and Debolina Kundu (2024). *Housing India: Programmes, Policies and Governance*. Routledge, London.
6. Kingston Talbot B. (2024). *Good Governance: Principles and Practices for Modern States*. Book Lovers HQ, North Carolina.
7. Lee Edward Kwok-yu and Wai-wan Vivien Chan (2024). *Inclusive Housing Management and Community Wellbeing*. Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Major HOU - 42
Course Title	LEGISLATION AND PROFESSIONAL PRACTICE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand, the interface between legislation and urban planning and to educate students regarding basic concept of law and Indian constitution and the requirements of various acts, laws, rules and regulations related to housing and urban planning.
- to understand the scope, nature and procedure of professional practice; prepare consultancy proposals and quote fees and charges for professional work in housing and spatial planning.

Course Contents

Unit 1: Introduction

Concept of law, legislation, ordinance, bill, Act Regulation and by-laws, provision regarding property rights, legal right, legislative competence of state and central Government to enact town planning legislation, concept of Eminent Domain and Policy Powers.

Unit 2: Law and Urban Planning

Significance of law and its relationship to urban planning benefits of statutory backing of planning schemes, public participation in statutory planning process, evolution of planning legislation and overview of legal tools connected with urban planning and development.

Unit 3: Professional Practice

Aims and objectives of professional institute sister bodies professional role and responsibility of planning consultants, professional ethics code of conduct and scale of professional charges, formulation of project proposal and outlines, consultancy agreements and contracts, role in interdisciplinary groups, role in decision making processes and the process in relation to varied consultancy assignment of planning.

Unit 4: Various Acts

Urban planning and development authority act, housing board act. Improvement trust act, Slum clearance act, Apartment act, Rent control act, Municipal act introduction to property law, property tax, assessment, lease, registration, etc., cooperative act.

Course Outcomes: Upon the completion of this course, the students will be able

- to comprehend the interaction between legislation and urban planning, including how legal frameworks influence urban development and planning processes.
- to acquire foundational knowledge of legal concepts, the Indian constitution, and specific acts, laws, rules, and regulations related to housing and urban planning.
- to identify the scope, nature, and procedural aspects of professional practice in housing and spatial planning.
- to develop skills to prepare detailed consultancy proposals, including project scopes, objectives, and methodologies.
- to appreciate to accurately quote fees and charges for professional services in housing and spatial planning, ensuring transparent and competitive pricing.

References:

1. *Institute of Town Planners, India. Planning Legislation and Professional Practice. ITPI, New Delhi.*
2. Bijlani, H.U. and Balachandran. (1978). *Law and Urban Land. Indian Institute of Public Administration, New Delhi.*
3. Ministry of Urban Development. (1996) UDPMI Guidelines Vol. 2A. Government of India, New Delhi.
4. Kulshrestha, S. K. (2012) *Urban and Regional Planning in India: Handbook for Professional Practice. Sage Publications, New Delhi.*
5. *Institute of Town Planners, India (2011). Conditions of Engagement of Professional Services and Scale of Professional Fee and Charges. ITPI, New Delhi.*
6. Central Public Works Department. (2012). CPWD Manual. Director General CPWD, New Delhi.
7. Central Public Works Department. (2022). CPWD Manual. Director General CPWD, New Delhi.
8. Mishra G.K. and P.S.N. Rao. (2000). *Housing Legislation in India. Kanishka Publications, Delhi.*
9. Agarwal V.K. (2005). *Environment Laws in India: Challenges for Enforcement Bulletin of the National Institute of Ecology, Jaipur.*
10. Ministry of Rural Development. (2011). *Land Acquisition, Rehabilitation and Resettlement Bill. Government of India.*
11. Government of India. (1872). *Indian Contract Act No. 9 of 1872. Government of India.*
12. Government of India. (1996). *The Arbitration and Conciliation Act. Government of India.*
13. Government of India. (2015). *The Arbitration and Conciliation (Amendment) Act. Government of India.*
14. Government of India. (1996). *The Arbitration and Conciliation Act. Government of India.*
15. Constitution of India. (1992). 73rd & 74th Amendment Acts. Government of India.

Course Code	As per Institutional Policy
Nature of Course	Minor HOU -41
Course Title	HOUSING FOR SPECIAL AREAS
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to introduce the basic characteristics of special areas and groups with reference to housing.
- to study the real world issues through case studies with particular reference to Indian cities.

Course Contents

Unit 1: Special Areas

Inner City Housing: Evolution and Historical Background, community, spatial Characteristics; Housing transformation of core city, impact of transformation; Problems of inner cities; Policies and programmes.

Fringes / Peri-urban / Sub-urban Housing: Rural urban linkages, characteristics of fringe areas, development process, various modes of land Supply in fringe area, case study with special emphasis on housing.

Arid / Coastal / Hilly Region Housing: Settlement and shelter characteristics, Materials and technology, design standards, climatic factors, danger of hazards, Settlement planning, development policies and programmes

Unit 2: Special Groups

Housing for Aged / Physically Challenged: Concept and definition of old age characteristics of aging population; Profile and growth of elderly persons; Classification of elderly population; Problems of elderly planning and design considerations for elderly; Case study with special reference to housing.

Unit 3: Housing for Women, Children and Refugees

Importance of gender in housing; Housing planning and design considerations with women perspective: hierarchy of spaces at macro and micro level; Shelter for low income women; Design considerations for urban and rural women; Housing options for different categories for single women; Government schemes; Case study with special reference to housing; Concept of refuges, types of refuges, norms for treatment of refugees, refugees law, refugees and housing, problems of refugees, planning considerations for the refugees, case study areas with reference to housing.

Unit 4: Shelterless and Tribal Housing

Shelterless in the context of urban poor; Psychological and social implications of poverty on homeless; Homeless in metropolis; Problems of homelessness, various interventions; Night shelters, case studies; Socio cultural and economic profile, settlement characteristics; Housing typology; Housing schemes; Policies and programmes for tribal upliftment; Case study area.

Course Outcomes: Upon the completion of this course, the students will be able

- to identify and describe the basic characteristics and unique needs of special areas and groups in the context of housing, including marginalized and vulnerable populations.
- to utilize findings from case studies to understand the complexities of housing in different contexts and develop targeted solutions for special groups.

- to evaluate the effectiveness of existing housing policies and interventions in addressing the needs of special areas and groups.
- to develop practical recommendations and strategies to improve housing conditions and address issues identified in case studies, considering the specific needs of different populations.

References:

1. Davis Ian. (1981). *Disasters and the Small Dwelling*. Pergamon Press, New York.
2. Gilroy Rose and Toberta Woods. (1984). *Housing Women*. Routledge, London.
3. Chant Sylvia. (1996). *Gender, Urban Development and Housing*. United Nation Development Program, New York.
4. Airea. (1957). *Single Family Dwellings*. CRC Press, Chicago.
5. Musson N. (1963). *Building for the Elderly*. Reinhold Publications, New York.
6. Jain A.K. (2020). *Housing for All: Design, Construction and Management*. Khanna Books Publishing, New Delhi.
7. Boston Redevelopment Authority (2022). *Tree of Life: Transitional Housing for Homeless Women and Children*. Legare Street Press, London.
8. Kant Krishna (2021). *Housing for Elderly and Differently-Abled*. Notion Press Media Pvt Ltd, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

**Model Curriculum
for Two-Year
3.1.7.: Two-Year M. Plan/ M. Tech
(Infrastructure Planning)**

Programme Objectives:

- The Programme aims at producing highly qualified professionals specializing in physical and social infrastructure planning to support the efforts of the regional and municipal governments and private sector in undertaking infrastructure planning and development programs. The Program aims to produce post-graduates equipped with theories and practices in infrastructure planning at various levels.

Programme Outcomes:

- Students will equip themselves with the physical, social, economic, and digital infrastructure with its latest policies and programmes. This will make them possible to get appointed in private, public autonomous agencies, and in the government at all levels and prepare infrastructure plans.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MIP-21)	Infrastructure Financing	2	1	0	3
	Major (MIP-22)	Infrastructure Economics	2	1	0	3
	Minor (MIP-21)	Infrastructure and Environment	1	1	0	2
	Minor (MIP-22)	Climate Resilient Infrastructure	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Master Plan	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MIP-31)	Infrastructure for Regional Development	2	1	0	3
	Major (MIP-32)	Infrastructure Governance	2	1	0	3
	Minor (MIP-31)	Project Formulation, Appraisal and Management	1	1	0	2
	Minor (MIP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B	0	0	8	4
		Infrastructure Development Plan				
	Skill Development SD – 32	Planning Studio – 31C	0	0	8	4
Feasibility Study of Infrastructure Projects						
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (MIP-41)	Infrastructure Policies	2	1	0	3
	Major (MIP-42)	Infrastructure Legislation and Professional Practice	2	1	0	3
	Minor (MIP-41)	Mega Projects	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Integrated First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major MIP – 21
Course Title	INFRASTRUCTURE FINANCING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to introduce concepts of infrastructure financing and the role of different institutions in financing infrastructure projects. It also intends to develop a logical reasoning ability in analysing the innovative methods of financing for urban infrastructure.

Course Contents

Unit 1: Introduction to Infrastructure Finance

Meaning and Scope of infrastructure financing; Central and State Finance Commission: constitution, powers, functions and recommendations for infrastructure projects; Inter-governmental fiscal relationship between Centre; State and Urban Local Government; Sources of revenues; Tax based and non-tax based of Development Agencies.

Unit 2: Forms of Financing

Forms of financing: insurance of bonds, Loans from banks and financial institutions, prospects and limitations; Role of different institutes in funding projects, Concept of SPV Debt financing, Equity financing; Privatization and Private sector contribution in financing infrastructure: approaches, types of contracts; Financing market: bonds, credit rating agencies.

Unit 3: Financial and Social Dimensions of Financing

Principles of maximum social advantage; Cost components of infrastructure development; Socio-economic cost benefit analysis; Principles of determining cost and price of infrastructure development to be charged from consumers/users: Cost recovery and affordability; Feasibility of project; Net Present Value (NPV) and Internal Rate of Return (IRR); Subsidy and cross-subsidy of infrastructure projects; Infrastructure valuation.

Unit 4: Challenges in Finance Mobilization for Infrastructure in India

Issues and challenges in infrastructure financing in developing countries; Measures taken by Central Government in infrastructure financing; India Infrastructure Project Development Fund; Pooled Financing; Case studies of Infrastructure projects and their financing under different programs and schemes

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge of financial mechanisms including various forms of finances and sources of finances
- to get an insight into different sources of income and expenditure from any infrastructure development projects.
- to understand the parameters and techniques to work out the financial feasibility of infrastructure projects

References:

1. Plan Recommendations of NITI Aayog and five year plan of Planning commission, Government of India.
2. Macdonald Mott. (2014). Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. Ministry of Urban Development, New Delhi.
3. Wellman (Ed.) (2012). Urban Infrastructure: Finance and Management. Wiley Blackwell, New Jersey.
4. Ministry of Urban Development (2011). Report on Indian Urban Infrastructure and Services. The High Powered Expert Committee (HPEC) for Estimating the Investment Requirements for Urban Infrastructure Services, Government of India.
5. Sharma. R. (2009). Local Government in India: Policy and Practice. Salasar Imaging Systems, Delhi.
6. Sethi V.K. (2007). Infrastructure Development in India. New Century Publications, New Delhi.
7. Peterson G.E. (Ed.) (2007). Financing Cities. Sage Publications, New Delhi.
8. Beall. J. (2005). Funding Local Governance. ITDG publishing, Great Britain.
9. Bhatia. H.L. (2003). Public Finance. Vikas Publishing House Pvt. Ltd, New Delhi.
10. National Institute of Urban Affairs (1997). Financing Urban Infrastructure in India. Research Study Series 59. NIUA, New Delhi.
11. Pratap Kumar V. and Manshi Gupta (2024). Infrastructure Financing in India: Trends, Challenges and Way Forward. OUP Oxford, Oxford.
12. Tirumala Raghu Dharmapuri and Piyush Tiwari (2023). Advances in Infrastructure Finance. Springer Nature, Berlin.
13. Cardinale Roberto, Tehreem Husain and D'Maris Coffman (2022). Infrastructure Finance: Critical Concepts in Finance. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major MIP – 22
Course Title	INFRASTRUCTURE ECONOMICS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to learn concepts of economics including estimation and costing of different Infrastructure projects
- to learn the Economic and Financial Feasibility of Infrastructure projects.

Course Contents

Unit 1: Indian Government Policy on Infrastructure

Policies and Funding through Sub-Sectors within Infrastructure: (1) Transport and Logistics, sub-sub Sectors: Roads and Bridges, Ports, Shipyards, Inland waterways, Airport, Railway track including electrical and signalling system, tunnels, etc.; Railway rolling stock, Railway terminal infrastructure including stations and adjoining commercial infrastructure, Urban Public Transport, Logistics infrastructure and bulk material transportation pipelines. (2) Water and Sanitation: Solid waste Management, Water treatment plants, Sewage collection, treatment and disposal system, Irrigation (dam, channels, embankments etc.) and storm water drainage system.; (3) Energy: Generation, Transmission, Distribution and Oil/Gas/Liquefied Natural Gas (LNG storage facility), (4) Communication: Telecommunication (fixed network), Telecommunication towers, telecommunication and telecom services, (5) Social and Commercial Infrastructure: Education Institutions (capital stock), sports infrastructure, hospitals, tourism infrastructure(classified), Common infrastructure for Industrial Parks and other parks (such as food parks, textile parks, diamond parks, economic zones, tourism facilities, and agricultural markets); Post harvest storage infrastructure for agriculture including storage, terminal markets, soil-testing labs, cold chain, affordable housing and affordable rental housing complex; National Industrial Corridor Development Corporation, DMIDC, National Industrial Corridor Development Implementation Trust (NICDIT), National Highway Authority of India, Digital Communications Commission(Telecom); Gati Shakti and its six pillars for infrastructure development push in India.

Unit 2: Sources of Financing Infrastructure

Financial sector (through Central Budget) reforms for long-term availability of financial from domestic sources and foreign capital, development finance institutions and financial markets; Infrastructure financing from fiscal resources, PSE's IEBR and Private Sector; Infrastructure Debt Funds (IDFs), Real Estate Investment Trust (REITs)/Infrastructure investment Trust (InvITs), Tax-Free Bonds, Municipal Bonds, Green Bonds for infrastructure financing and credit enhancements; PPP financing, Municipal Bonds issues by ULGs for PPP and non-PPP projects; Green Bond guarantees by States for Municipal Green Bonds, National Housing Bank, LIC Finance for infrastructure, and public sector and private sector banks for infrastructure; Over all role of Regulatory (RBI) agency for financing infrastructure and its role for Public Sector Funding and refinance for infrastructure.

Unit 3: State's Infrastructure Policies and Their finances

State direct controlled infrastructure: Public transport, state highway, and district way; Electricity: generation, transmission, and distribution; Social Infrastructure: Education, Health, Agricultural Markets, State sports and other related facilities; State's Minor Port; All the

policies designed by the States along with their price policy, cross subsidisation, waiver, etc.; Pricing for autonomous State Government Organisations: Water, Sewerage and Drainage Board, Electricity Board have their own pricing policy: Demand and Supply assessment; Irrigation: Exclusively done by the PWD /Irrigation Department: Pricing depends on the Supply and Demand by the authority; State Budgets decides the Internal resource mobilisation, Bonds, loans, bilateral and multilateral funding.

Unit 4: General Market Regulation for Infrastructure for Financing

Government Service Norms for Indian Cities: water, sewerage and sanitation, SWM and transport: Urban Infrastructure Investment Requirement (HPEC report: 2011) and Financing requirement from various sources; Government Regulation: Utility Regulator; ombudsman, Local fund audit; Supply and Pricing Policy: Per capita investment cost and operations and maintenance cost, Viability Gap Funding Scheme of GoI (2020); Guidelines for Multilateral Development Banks (MDBs); Manual for PPP projects; Guidelines for formulation, appraisal and approval of public private partnership Projects (2006) and for Infrastructure (2007); Amendment for PPP in Infrastructure: eligible sectors 2013; India Infrastructure Project Development Fund (IIPDF: 2007); Policy guidelines for external assistance by State Government from bilateral agencies for vital infrastructure projects; 13th and 14th CFC commission recommendations for Rural and Urban Local Bodies: Basic, Performance, special area basic, and special areas performance grants; Conditionalities: Water supply & sanitation, SWM, Drainage, E-Governance, Transportation, Fire services, etc.; NDRF guidelines Resource Fund; State Government's Finance Commissions and commitments for lower tier funding for infrastructure for urban and rural area based on certain criteria.

Course Outcomes: Upon the completion of this course, the students will be able

- to be proficient in applying economic principles to estimate and cost infrastructure projects.
- to assess and analyze the financial viability and economic impact of infrastructure projects.

References:

1. Ahluwalia Judge Isher, Nasser Munjee, Nachiket Mor, Vijayanunni M, Sudhir Mankad, Rajiv Lall, Harishankar and PK Srivastava (2011): The High Powered Expert Committee (HPEC) for Estimating The Investment Requirements for Urban Infrastructure Services. Ministry of Finance, Government of India.
2. Department of Economic Affairs (2024). Guidelines on Infrastructure Policy and Guidelines. Government of India.
3. Mathur Om Prakash, Abbas Haider Naqvi, Akanksha Laroiya, Sai V Samyukta and Himani Verma (2011). State of the Cities: India. Institute of Social Sciences for Housing Urban Development Corporation (HUDCO), New Delhi.
4. McKinsey Global Institute (2018). Smart Cities: Digital Solutions for a more Livable studies. McKinsey & Company, New York.
5. Sanyal Sanjeev, Sumati Nagrah and Gorika Singla (2020). The Alternative Urban Futures Report: Urbanisation and Sustainability in India: An Interdependent Agenda. Mirabilis Advisory, WWF, New Delhi.
6. Government of India (2024). PM Gati Shakti: National Master Plan for Multi-Modal Connectivity.
7. Gómez-Ibáñez José A. and Zhi Liu (2021). Infrastructure Economics and Policy: International Perspectives. Lincoln Institute of Land Policy.
8. Mor N. (2020). Sources of Infrastructure Finance. SSRN, New York.

Course Code	As per Institutional Policy
Nature of Course	Minor MIP – 21
Course Title	INFRASTRUCTURE AND ENVIRONMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to provide an understanding of the impact of the infrastructure sector on the environment and various policies initiated to deal with the problems in the Indian context.

Course Contents

Unit 1: Interface between Infrastructure and Environment

Introduction to Infrastructure and Environment relationship; Environmental planning and Concepts; Environmental Sustainability, Environmental Capacities and types; Environmental issues specific to infrastructure projects; Infrastructure projects for Environmental sustainability: water supply, solid waste, sanitation, drainage.

Unit 2: Specific Infrastructure and its Impact on Environment

Infrastructure development and Environmental impact; Considerations, guidelines and indicators for environmentally conscious plan for different infrastructure projects; Urban infrastructure: water supply, solid waste, sewerage, urban transport; Regional and National infrastructure: Transport and freight, communication, pipelines, ICT, energy.

Unit 3: Environmental Impact Assessment for Infra Projects

Environmental Impact Assessment: planning, relevance, process, categorization of projects based on environmental impacts; Assessment of baseline situation for different infrastructure projects based on project cycle; Environment Impact Assessment practices in India; Legislative and Institutional Regimes for EIA.

Unit 4: Global Guidelines for Environment and its Implications on Indian Infrastructure

Environment in international agenda: UN Conference on Human Environment, Earth Summit, The United Nation Framework Convention on Climate Change, SDGs; Environment in national agenda: Legal and policy measures in India for protecting environment

Course Outcomes: Upon the completion of this course, the students will be able to:

- to understand the various environmental pollutants and their impact on human health.
- to plan and create the environment according to the various guidelines for safeguarding the environment from different types of pollution.
- to assess the measures, policies and strategies for better placements.

References:

1. Abbasi S. D. (2004). Environmental Impact Assessment. Discovery Publishing House, New Delhi.
2. Anand S. (2010). Solid Waste Management. Mittal Publications, New Delhi.
3. Bhatt M. A. (Ed.). (2012). Solid Waste Management: An Indian Perspective. Synergy Books India, New Delhi.
4. Cowte J. (2009). Climate Change. Cambridge University Press, Cambridge.
5. Krishnamoorthy B. (2012). Environmental Management. PHI learning Pvt. Ltd., New Delhi.

6. Prabhakar V. (Ed.). (2001). Environmental Impact Assessment. Anmol Publications Pvt. Ltd., New Delhi.
7. Selman P. (2000). Environmental Planning. Saga Publications Ltd., New Delhi
8. Shastri S. (2008). Environmental Law. Eastern Book company, New Delhi
9. Singh L. (Ed.). (2008). Ecology, Environment and Tourism. Isha books, New Delhi.
10. Singh V. (Ed.). (2012). Climate Change and New Challenges. Concept Publishing Company Pvt. Ltd., New Delhi
11. Krakowiak A. and Magdalena Vaverkova. (2020). Infrastructure and Environment. Springer, Berlin.
12. Joseph S. and K.S. Arunkumar (2022). Environmental Impact Assessment of Developmental Projects. Narendra Publishing House, Delhi.
13. Bonan Giacomo, Katia Occhi (2023). Environment and Infrastructure. Walter de Gruyter GmbH & Co KG, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Minor MIP – 22
Course Title	CLIMATE RESILIENT INFRASTRUCTURE
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the fundamental concepts of climate resilience and learn methods and tools for climate risk assessment and vulnerability analysis.
- to understand the principles and practices for designing climate resilient urban infrastructure.
- to understand international frameworks, national policies, and funding mechanisms that support climate-resilient planning and development.

Course Contents

Unit 1: Climate Change Impact and its Interface with Infrastructure

Introduction to Climate Resilience: Definitions and principles of climate resilience; Importance of integrating resilience into infrastructure planning; Climate Change impacts on Infrastructure; Effects of climate change on infrastructure systems: flooding, heatwaves, sea-level rise; Case studies from India and internationally on climate impacts.

Unit 2: Risk Assessment and Vulnerability vis-à-vis Infrastructure

Climate Risk Assessment and Vulnerability Analysis: methods, tools and frameworks for vulnerability assessment; Adaptation Strategies for Infrastructure covering examples of successful adaptation measures from Indian cities and global practices.

Unit 3: Special Infrastructure Requirements for Climate Change

Climate Resilient Urban Infrastructure: Principles and practices for designing infrastructure that can withstand climate impacts; Green Infrastructure and Sustainable Urban Design; Strategies for managing urban flood risks through improved stormwater management systems; Review of innovative flood management solutions including rain gardens and sustainable drainage systems.

Unit 4: National and Global Agenda and Local Self-Government Policies

Overview of international frameworks and agreements aimed at promoting climate resilience (e.g., Paris Agreement, Sustainable Development Goals); Examination of national policies and strategies for enhancing climate resilience: national adaptation plans, climate action strategies, National Action Plan on Climate Change State Action Plans; Overview of funding mechanisms and financial support available for climate resilient projects: Green Climate Fund, national and state-level grants.

Course Outcomes: Upon the completion of this course, the students will be able

- to define climate resilience and learn methods for conducting climate risk assessments, using vulnerability analysis tools.
- to apply principles of climate resilience to urban infrastructure design, integrate green infrastructure
- to appreciate global and national climate resilience initiatives and available financial support mechanisms

References:

1. Singh V. (2012). Climate Change and New Challenges. Concept Publishing Company Pvt. Ltd, New Delhi
2. Theodore M. K. (2012). Introduction to Environmental Management. CRC press, Boca Raton, Florida.
3. Krishnamoorthy B. (2012). Environmental Management. PHI learning Pvt. Ltd., New Delhi.
4. Banerjee B. P. (2005). Handbook of Energy and the Environment in India. Oxford university press, New Delhi
5. Cowte J. (2009). Climate Change. Cambridge University Press, Cambridge.
6. Singh L. (2008). Ecology, Environment and Tourism. Isha books, Delhi.
7. Gore A. (2007). An inconvenient truth. Mixed Sources, London.
8. Gupta S. P. (2003). Environmental Issues for the 21st century. Mittal Publications, New Delhi.
9. Selman P. (2000). Environmental Planning. Saga Publications Ltd, New Delhi
10. Cowte J. (2009). Climate Change. Cambridge University Press, Cambridge
11. Singh V. (2012). Climate Change and New Challenges. Concept Publishing Company Pvt. Ltd., New Delhi
12. Ayyub Bilal M. (2023). Climate-Resilient Infrastructure: Adaptive Design and Risk Management. ASCE Press, Virginia.
13. Infield Elisabeth M. Hamin, Yaser Abunnasr and Robert L. Ryan (2020). Planning for Climate Change. Routledge, London.
14. Ministry of Environment, Forest and Climate Change (2021). National Action Plan on Climate Change. Government of India.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development: SD – 21
Course Title	PLANNING STUDIO – 21 QUANTITATIVE METHODS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand about the statistical tools for the analysis of current conditions and future projections and for modeling the future scenario.

Course Contents

Unit 1: Introduction to Statistics, Organizing Surveys & Data Collections

Statistics, Functions of Statistics, Applications and Limitations of Statistics; Organizing a statistical survey: Techniques of data collection, choice of frame, Degree of accuracy desired, Design of forms, field investigators; collection of Data: Primary and Secondary Data, Drafting the questionnaire, Sources of Secondary data, Editing primary and secondary data.; Census of India tables and its usage in planning; CSO/NSSO/NFHS data and its usage in planning; linking Census of India to NSSO tables.

Unit 2: Sampling, Sample Designs and Classification & Tabulation of Data

Census and Sample Method; Theoretical basis of sampling, Methods of sampling, Size of sample; Classification and Tabulation of data: Meaning and classification of objectives, types of classification, Frequency Distribution; Tabulation of Data: Difference between classification and tabulation, types of tables; soft wares for tabulation.

Unit 3: Measures of Central Value, Dispersion & Skewness, Moments, Kurtosis

Types of Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, General limitations of average. Measures of Dispersion: Measuring Variation: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variations, Chebyshev's theorem, Lorenz curve. Difference between dispersion and skewness, measures of skewness, Moments, Sheppard's correction; Kurtosis.

Unit 4: Correlations and Regressions

Correlation and Causation; types of correlations, Partial and multiple correlation, scattered diagram method, Graphic method; Kar Pearson's coefficient of correlation; Probable Error; Coefficient of Determination, Rank Correlation, Concurrent Deviation method. Regression: Regression lines, Regression Equation; Regression equations in case of correlation table, Standard Error of Estimate. Time Series: Measurement of Trend, Seasonal, cyclical and irregular variations. Introduction to Interpolation and Extrapolation.

Course Outcomes: Upon the completion of this course, the students will be able

- to acquire practical skills in analysing and visualization of data.
- to trained to carry out projections and scenario building.

References

1. Gupta S. P. (2024). Statistical Methods. Sultan and Chand, Delhi.
2. E. Reid and Keunhyunk Park. (2020). Basic Quantitative Research Methods for Urban Planners. Routledge, London.
3. Anusha Illukkumbura (2020). Introduction to Regression Analysis. Amazon Digital Services LLP.
4. Lohr Sharon L. (2022). Sampling Design and Analysis. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO - 22 MASTER PLAN
No. of Credits	6 (L: 0; T:0; U: 12)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to identify various challenges related to different aspects of the towns undertaken for study.
- to identify the problems and potentials emphasizing infrastructure of the town to prepare a Master Plan.
- to train the students to prepare an Outline Development Plan or Master Plan of an Urban Area

Course Contents

The purpose of the study is to prepare a master plan of that town which aims at improving the urban environment. Students shall be required to prepare master plan for the urban area studied in “Study of Town”. The scope of master plan preparation will include working out the detailed requirements; formulation goals, objectives and policies; planning considerations; conceptual framework; planning proposals including zoning and phasing; and implementation strategy covering organizational and financial aspects.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the existing development characteristics of the town.
- to study the problems and potentials of the town and the existing administrative and financial mechanisms of the town.
- to study the relationship characteristics of the town with its surrounding area.
- to know the skills of studying the various aspects related to urban planning and its development in relation to other aspects.
- to plan and design different future scenarios, priorities of development, action areas, phasing and zoning, and to propose for the implementation of the plan.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. Kadiyali L.R. (2014). Traffic Engineering and Transport Planning. Khanna Publishers, New Delhi
2. Ministry of Urban Affairs & Employment (G.O.I.) (2014). Urban & Regional Development Plans Formulation and Implementation Guidelines. Town and Country Planning Organization, New Delhi.
3. Campbell T. (2012). Beyond smart cities: how cities network, learn and innovate. Earthscan, New York.
4. Venugopal R.A. (2010). State of Urban services in Indian cities. Oxford University Press, New Delhi
5. JNNRUM (2005). Guidelines Ministry of Urban Development & Poverty Alleviation, Government of India, New Delhi.
6. CPHEEO (1997). Manual of Sewage and Sewage Treatment. Ministry of Housing & Urban Development, Government of India, New Delhi
7. CPHEEO (1997). Manual of Water Supply in Treatment, Ministry of Housing & Urban Development, Government of India, New Delhi
8. Lall Somik (2013). Planning, connecting and financing cities. World Bank, Washington DC.
9. Helms G. (2012). Towards safe city centres: remaking the spaces of an old industrial city. Ashgate, Aldershot.
10. Latham A. (2009). Key concepts in Urban Geography. Sage, London.
11. Healey M. (2023). The Master Plan. Playwrights Canada Press, Ontario.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major MIP – 31
Course Title	INFRASTRUCTURE FOR REGIONAL DEVELOPMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to provide the conceptual clarity of the region and its characteristics including an understanding of issues, requirements, policies and programs related to the regional level of infrastructure.

Course Contents

Unit 1: Typology of Regions and Infrastructure Policies

Definition and types of regions; Importance of infrastructure (physical, social and economic) in regional perspective; Status of regional development in India; Policies & Programs for regional infrastructure development in various Five Year Plans.

Unit 2: Scale, Norms and Standards for Regional Infrastructure

Need for innovative approaches in infrastructure development; Integrated infrastructure planning process, Regional infrastructure in the context of different levels of regions; Norms and Standards; Regional infrastructure constraints; current practices for regional infrastructure development.

Unit 3: Regional Infrastructure and its Provision

Planning for infrastructure in a region: Transport, water resources, telecommunication, electricity, energy resources, agriculture market, fertilizer, implements, research and development, extension services; Planning for infrastructure in a village and its hierarchy: physical, social and economic.

Unit 4: Regional Policies for Infrastructure

Regional infrastructure development issues, priorities & strategies in Punjab; Selected case studies of Regional development: Rajasthan canal area and National Capital Region, Tokyo, and London Metropolitan Region and ICAP case study of any state in India.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the nature, form and characteristics of regions and government initiatives in the provision of regional infrastructure development.
- to make the students aware about various approaches to prepare different levels of regional infrastructure, plan their constraints and government initiatives as best practices.
- to evaluate the key drivers of development and their planning implications through best practices of infrastructure.

References:

1. Aromo Ilesanmi Felix. (2013). Regional Infrastructure Development Intervention. Lambert Academic Publishing, Mauritius.
2. Bhattacharyay Biswa Nath, Masahiro Kawai and Rajat M. Nag. (2012). Infrastructure for Asian Connectivity. Edward Elgar Publishing Limited, London.

3. Rakesh Mohan Rakesh. (1997). India Infrastructure Report, pp 217-259.
4. Government of India (1997). Report of Task Force on Planning and Development of Small and Medium Towns and Cities.
5. Singh Kulwant, Steinberg Einsiedal. (1996). Integrated Urban Infrastructure Development in Asia. HUDCO, New Delhi.
6. Singhal A. (1989). Evolution of Development and Development Administration Theory. Indian Journal of Rural Development. Vol. 35(4) pp 841-850.
7. Khan M.A. (1978). Sociological Analysis of the working of Small farmers Development Agency. IIAS, Shimla.
8. Ministry of Housing and Urban Affairs. (2023). India Infrastructure Report. Government of India, New Delhi
9. Dr. Nath V. and Dr. S.K. Aggarwal. (2023). Regional Development and Planning in India. Concept Publishing Company, Delhi.
10. Mishra M. and R.B. Singh (2023). Regional Development Planning and Practice: Contemporary Issues in South Asia. Springer, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Major MIP – 32
Course Title	INFRASTRUCTURE GOVERNANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the role, importance, and responsibilities of different organizations in decision making process of infrastructure provision and their implementation.

Course Contents

Unit 1: Role of Governance in Infrastructure

Overview of Infrastructure Development and Governance; Role of governance in development of infrastructure projects; Ideas of good governance; Good governance initiatives at Government of India Level: Programs of Government of India; Process of decision making for infrastructure projects at National level, state level and local level.

Unit 2: Infrastructure Policies and Guidelines

Infrastructure Development in India; Policies, programmes and provisions in the different five-year plans; Provisions for growth enablers in action agenda of NITI Aayog; Various National level organizations related to Infrastructure Development: National Highway Authority of India, Niti Aayog in terms of their background, functions, powers, setup and resources.

Unit 3: Corporations, Boards, Industrial Townships for Infrastructure: Variations in Models

Various State level organizations related to Infrastructure development: Punjab Infrastructure Development Board, GIDB, Public Works Department, Gujarat Maritime Board, Water Supply and Sanitation Boards in terms of their background, functions, powers, set-up and resources (with some case studies); Process of decision making for Infrastructure Development at Local Level.

Unit 4: Governance at Various Levels and Interface with Infrastructure

Various local level organizations related to Infrastructure Development in terms of their background, functions, powers, set-up and resources (with some case studies); Role of Non-Government and Private Organizations in Planning and Development of Infrastructure and their relationships with Local and State Governments; Good Governance Index; Citizens' Charter; Service Level Benchmarking; Report Card System; Social Audit; Corporatization of Municipal Services, etc.; Facility Management.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the initiatives taken by the Government of India in developing and upgrading the infrastructure at various levels.
- to demonstrate the knowledge about the functioning and role of various planning organizations at the national, state, and local level

References:

1. Report on Indian Urban Infrastructure and Service (2011). Ministry of Urban Development, Government of India.
2. WBI (2006). Training Manual and Urban Infrastructure Services.
3. Ganesan S. ed. (2001). Infrastructure Development and Financing. Centre for Science. Kanishka Publishers, Delhi
4. United Nations Centre for Human Settlements (UNCHS – Habitat) (2001). Cities in a Globalizing World: Global Report on Human Settlements. Earthscan, New York
5. Agarwal Anil, Sunita Narain and Srabani Sen (Ed.). Citizens Fifth Report (1999). Centre for Science and Environment, New Delhi.
6. Report of Task Force on Planning and Development of Small and Medium Town and Cities (1997). Government of India, New Delhi.
7. Ministry of Urban Affairs & Employment (1996). Urban Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
8. Five Year Plan I to XII, Ministry of Statistics and Programme Implementation, Government of India.
9. India Year Book (2007, 2008). Ministry of Information & Broadcasting. Government of India, New Delhi.
10. Report of National Commission on Urbanization (1988). Ministry of Urban Development. Government of India, New Delhi.
11. Wegrich Kai, Genia Kostka, and Gerhard Hammerschmid (2017). The Governance of Infrastructure. Oxford University Press, New Delhi.
12. India Infrastructure Report (2014). IDFC Foundation. Oxford University Press, England.
13. Cohen Michael A. (2024). Infrastructure Policy. Routledge, London.
14. Dr. Adv. Savla Harshul and Ar. Patil Pallavi. Facility Management: Indian & Global Best Practices. Notion Press, Chennai.
15. Department of Administrative Reforms & Public Grievances. Good Governance Index (2020-21). Government of India

Course Code	As per Institutional Policy
Nature of Course	Minor MIP - 31
Course Title	PROJECT FORMULATION, APPRAISAL AND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand spatial data infrastructure through advanced GIS platform and to simulate planning preparation, manage/monitor and assess evaluation within a short time.

Course Contents

Unit 1: Introduction to Project Appraisal, Project Cycle and Stages of Appraisal

Relevance of Project in Metro urban region planning, Identification, project cycle, Urban Planning and project appraisal; Stages of Appraisals: Financial, Economic, Social, Institutional and Environmental appraisals; Sensitivity Analysis of each of appraisals.

Unit 2: Detailed Project Report (DPR)

Definition of DPR, content in DPR: step by step process; Project Background, Feasibility study approach: Pre-implementation stage, implementation stage, and post-implementation stage; Types of surveys to be carried out for DPR; Team mobilization for DPR making; Financial section of DPR: Fundamentals of audit, costing, and budgeting of urban planning related projects; Processes involved in financial planning including the preparation and analysis of budgets, cost estimation, and financial audits; The role of stakeholder contributions in project financing and management, and strategies for managing emergency risk funds.

Unit 3: DPR for a Utility project for a neighbourhood/precinct & DPR for Industrial townships/Large-scale Infrastructure Project

A case study of a neighborhood to prepare a step-by-step detailed project report for electricity, water supply and conservation including water treatment plant, rainwater harvesting, Sanitation; Solid Waste Management and policy frameworks using GIS; A case study on an existing planned industrial township or a large-scale regional projects, infrastructure project; single sector vs mixed industries; Industrial corridor projects; The role of NITI Aayog, role of GIS in projects.

Unit 4: Monitoring and Evaluation

Project Monitoring and Evaluation: Network analysis (CPM, PERT); Software for Project Appraisal and Monitoring and Evaluation; Types of Evaluation: Concurrent and Post Impact Evaluation.

Course Outcomes:

- to interface the GIS skills to spatial planning to simulate, prepare, manage/monitor and evaluate spatial planning through the digital network system.

References:

1. Dasgupta Partha, Sen Amartya and Marglin Stephen (1972). Guidelines for Project Evaluation. UNIDO. Vienna.
2. Hansen R (1986). Guide to Practical Project Appraisal Social Benefit-Cost Analysis in Developing Countries. UNIDO, Vienna.

3. Heng Kang Sang (1995). Project evaluation: Techniques and practices for developing countries. University of California. Avebury, USA.
4. IPE and Tamil Nadu Infrastructure Services Limited (2009). Project Appraisal Manual: Capacity Development of National Capital Region Planning Board (NCRPB) for Asian Development Bank. NCRPB, New Delhi.
5. Chandra Prasanna (1995). Projects: Planning, analysis, selection, implementation and review. Tata McGraw Hill Publications, New Delhi.
6. Kerzner Harold R. (2013). Project Management: A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, New York.
7. Lester Albert (2007). Project Management, Planning and Control. Butterworth Heineman Publications, England.
8. Dragan Z. Milosevic. (2003). Project Management Tool Box: Tools and Techniques for the Practicing Project Manager. John Wiley & Sons, New York.
9. Asian Development Bank (2024). Project Performance Evaluation Report for Secondary Cities Development Project. Manila.
10. Taliercio Robert and Eduardo Andres Estrada (2020). Best Practices in Project Appraisal and Selection: How Strong Infrastructure Governance Can End Waste in Public Investment. IMF, Washington DC.
11. Bansal Vijay (2023). Project Management: Planning and Scheduling Techniques. Taylor & Francis, New York.
12. Garg Ajay (2024). Preparation of Detailed Project Report (DPR) and Techno-Commercial Feasibility Report (TCFR). Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Minor MIP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Qualitative and Quantitative Research, and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO – 3B INFRASTRUCTURE DEVELOPMENT PLAN
No. of Credits	4 (L: 0; T:0; U: 8)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to impart practical exposure to the students about identification of infrastructural issues of any sector by conducting surveys and later prepare the plan with application of advanced infrastructure practices.

Course Contents

Infrastructure has to be undertaken within the larger developmental perspective. In view of this, the exercise attempts to expose the students with knowledge base related to various sub-section- like roads, railways, irrigation, telecom, industrial, agriculture infrastructure, health infrastructure, proper distribution of social facilities & open spaces, consideration for economically weaker sections-. In addition, issues related to provision of infrastructure services, existing gaps, financing & Implementation strategies and role of various agencies in realizing the plan are also important.

The students will carry out survey and studies (primary & secondary) of the settlement and will cover the baseline study (physical, social, economic, environmental, and institutional) including regional setting, historical profile, physiographic features, natural resources, demographic details, land utilization, housing, settlement pattern, agriculture and allied activities, industrial development; Infrastructure sector status of energy, tourism, transport, information and communication technologies (ICT), water, supporting infrastructure (social, agricultural, industrial) and legal, administrative and financial including regional/rural policies and programmes, legal and administrative structure, financial setup for the regional infrastructure plan.

The students will visit a selected region of the study for the exercise as decided by the concerned teacher(s). The students will analyze issues in various sectors of the region looking into their social, economic, environmental and institutional dimensions. The students are expected to go into details of each of the infrastructure sectors with a view to develop a plan that shall mitigate grass root level development issues and help in generating social and economic capital. New theoretical and global approaches in the field of regional and micro level development need to be researched for the purpose of their applications in the said region. The students are motivated to adopt innovation and research-oriented tactics in order to present their final outputs.

Course Outcomes: Upon the completion of this course, the students will be able

- to well-versed with theory and applications of regional planning principles and concepts; and able to undertake elaborate studies and data analysis related to regional infrastructure planning.
- to prepare regional/block/village plan for infrastructure upliftment and eradication of disparities through infrastructure provisions.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. Ministry of Urban Affairs & Employment (2014). Urban & regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
2. Ilesanmi Felix Aromo (2013). Regional Infrastructure Development Intervention. LAP Lambert Academic Publishing, Saarbrücken.
3. Bhattacharyay Biswa Nath, Masahiro Kawai and Rajat M. Nag. (2012). Infrastructure for Asian Connectivity. Edward Elgar Publishing Limited, Cheltenham.
4. Singh Kulwant and Steinberg, Einsiedal, (1996). Integrated Urban Infrastructure Development in Asia, HUDCO, New Delhi.
5. Khan M.A. (1978). Sociological Analysis of the working of Small farmers Development Agency. IIAS, Shimla.
6. Tan W. (2021). Managing Infrastructure Plans. World Scientific Publishing Company, New Jersey.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO – 3C FEASIBILITY STUDY OF INFRASTRUCTURE PROJECTS
No. of Credits	4 (L: 0; T:0; U: 8)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the process of conducting the feasibility studies of an Infrastructure project and to evaluate its feasibility.

Course Contents

The students shall undertake a detailed project study related to development of infrastructure planning, design and management aspects at site, urban, inter-urban, rural or regional level. This exercise will involve relevant field data collection besides secondary data collection. The data collected would be analyzed to assess the existing characteristics and identify various problems and issues. Based on the scope of the study, alternate improvement, planning, design and management strategies would be formulated and evaluated by taking into account costs and benefits; Also to consider the guidelines of the scheme/programme guidelines under which project has been taken.

Subsequently, the students shall identify the components of the project and set their priority for the implementation with the help of PERT/CPM charts. The students shall be required to analyze the choice of technology, environmental, social and economic feasibility of the project along with the broad cost estimates of the identified tasks along with the time frame. They shall identify the returns from the project, total seed money required, working capital and breakeven point on timeframe. They shall identify the agencies, financial and legal mechanisms involved in the implementation of different components of the project including operation & Maintenance systems.

The students will visit a selected area of the study for the exercise as decided by the concerned teacher(s).

The students shall be required to complete the studio exercise by submitting a detailed report suitably supported by illustrations, diagrams, figures and maps.

Note: Data collection shall be done by the students on their own. Duration of data collection shall not exceed five working days.

Course Outcomes: Upon the completion of this course the students will be able

- to undertake feasibility studies and propose an alternative plan that is a financially feasible.
- to appreciate the applications of various techniques of project management through a selected infrastructure project.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. ADB (2013). Cost Benefit Analysis for Development: A Practical Guide. Asian Development Bank, Phillipines.
2. Puget Sound Regional Council (2009). Benefit-Cost Analysis: General Methods and Approach. Washington.
3. Overton Rodney. (2007). Feasibility Studies Made Simple. Martin Books Pvt. Ltd., Australia.
4. Harod Kerzner (2006). Project Management: A System Approach to Planning, Scheduling and Control. John Wile & Sons, New York.
5. Driesen David M. (2004). The Feasibility Principle. White Paper: 407. Washington.
6. Chandra Prasanna. (2002). Projects Planning, Analysis, Financing, Implementation and Review. Sage Publishers, New Delhi.
7. Goodman Louis J. (1988). Feasibility Analysis and Appraisal of Projects. Springer, New York.
8. Tan W. (2021). Managing Infrastructure Plans. World Scientific Publishing Company, New Jersey.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional policy
Nature of Course	Major MIP - 41
Course Title	INFRASTRUCTURE POLICIES
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional policy
End Semester Assessment	As per Institutional policy

Course Objectives: The student will be enabled

- to make the students well aware of the various policies of infrastructure in India and its role in the social and economic development of the country.

Course Contents

Unit 1: Infrastructure Policy Making and Policies

Policy: meaning, types, tools, attributes of a good policy-making process; Weaknesses in India's Public Policy making; Traditional approach to infrastructure development, commercialization, risk allocation, infrastructure and economic development.

Unit 2: Sectoral Policies: Energy, Telecommunication

Electricity: legal and regulatory framework, acts, institutional reforms, National Electricity Policy 2005, major issues, recent programs; Telecommunication: role and importance of telecommunication, telecommunication in India acts, National Telecom Policy, broadband policy, and institutional setup: DOT, TRAI, TDSAT, Issues.

Unit 3: Railway and Aviation and Airport Policy

Railways: evolution of railways in India, importance of railways, organizational setup of ministry of railways, R3i Policy, major projects, dedicated freight corridors, urban railway; Civil Aviation: evolution, role, legal and regulatory mechanism, AAI, DGCA, National Civil Aviation Policy, Airport Infrastructure Policy; Ports: role of ports, port types, institutional setup, major ports, cargo traffic, port policy, containerization.

Unit 4: Social Infrastructure: Health and Educational Policy

Health: public health infrastructure, role of private sector, legal setup, regulatory mechanism, institutional setup, health policy, Role of Government and Private Sector in Health Infrastructure: Objectives; Salient Points of NHP, national rural/urban health missions; Education: Education Policy in India, central government schemes for school education, issues and challenges in Indian education, educational infrastructure in India; role of international institutions (world bank, Asian development bank) in provision of infrastructure in India.

Course Outcomes: Upon the completion of this course, the students will be able

- to gain an understanding of the various infrastructure policies and their application in various projects of infrastructure planning

References:

1. India Infrastructure Report (1996 - 2014). IDFC Foundation. Oxford University Press, England.
2. Arunachalam P. (2008). Special Economic Zone in India. Serials Publications, New Delhi.
3. Narinder Jetty K. and Vishal Sethi (2007). Infrastructure Development in India. New Century Publications, New Delhi
4. Aggarwal S. K. (2007). Regional Development and Planning in India. Concept Publishers, New Delhi.

5. Mahajan O.P. (2007). Economic Planning and Regional Development in India. Ess Ess Publications, New Delhi.
6. Kumari. A. (2006). Balanced Regional Development in India: Issues and Policies. New Century Publications, New Delhi.
7. Stiftel. B. (2006). Dialogues in Urban and Regional Planning. Routledge, London.
8. JNNURM Guidelines (2005). Ministry of Urban Development & Poverty Alleviation. Government of India, New Delhi.
9. Bhargava G. (2001). Development of India's Urban, Rural and Regional Planning in the 21st Century Policy Perspective. Gyan Publishing House, New Delhi.
10. Cohen Michael A. (2024). Infrastructure Policy and Inequality. Routledge, London.
11. Ministry of Civil Aviation (2020). Policy on Airport Infrastructure. Government of India.
12. Ministry of Civil Aviation (2016). National Civil aviation Policy. Government of India.

Course Code	As per Institutional Policy
Nature of Course	Major MIP – 42
Course Title	INFRASTRUCTURE LEGISLATION AND PROFESSIONAL PRACTICE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to make the students aware about various laws of infrastructure planning, their objectives, provision, and their role in physical development.
- to understand the professional ethics in planning and the role as well as the responsibility of professionals.

Course Contents

Unit 1: Introduction to Legislation related to Planning

Interface between policy and legislation pertaining to infrastructure development; Understanding and significance of law; Concept of eminent domain; Indian Constitution: concept and contents, legislative competence of central and state legislature in context of infrastructure projects; Urban infrastructure and related acts 73rd and 74th Constitution Amendment Act; An overview of legal tools connected with planning and development of infrastructure projects.

Unit 2: Legal Tools and its Delivery

An overview of legal tools connected with planning and development of infrastructure projects including: Infrastructure (Development & Regulation) Act, National Highways Acts, Airport Act, Railway Act, and Special Economic Zone Act.

Unit 3: Infrastructure and related Sector – Land, Environment and Forest

Infrastructural development and land acquisition; Land Acquisition Act: Historical background, need, advantage, limitations, relevance in today's context, procedure for compulsory acquisition of property and determination of compensation; Environmental Acts: water prevention and control of pollution act, air prevention and control of pollution act, environmental protection act and relevance in context infrastructural projects.

Unit 4: Professional Practice for Planners: Guidelines

Professional Practice: aims and objectives of professional institute, sister bodies professional role and responsibility of planning consultants; Professional ethics code of conduct and scale of professional charges; Formulation of project proposal and outlines; Consultancy agreements and contracts; Role in interdisciplinary groups; Role in decision-making processes and the process in relation to varied consultancy assignment of planning.

Course Outcomes: Upon the completion of this course the students will be able

- to express familiarity with various infrastructure-related laws and their interface with infrastructure planning.
- to develop knowledge about the professional ethics, code, scale and mode of charges for various infrastructure projects.

References:

1. Ministry of Law and Justice. (2015). The Constitution of India. Government of India, New Delhi.
2. Macdonald Mott. (2014). Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines. Ministry of Urban Development, New Delhi.
3. Kulshrestha S. K. (2012). Urban and Regional Planning in India: A Handbook for Professional Practice. Saga Publications, New Delhi.
4. Naseem Mohammad (2011). Environmental Law in India. Kluwer Law International, Netherlands.
5. Chawla B.S. (2009). Punjab Urban Development Acts and Rules. Chawla Publication Pvt. Ltd., Chandigarh.
6. Ministry of Urban Affairs & Employment (2014). Urban & Regional Development Plans Formulation and Implementation Guidelines. Government of India, New Delhi.
7. Kulshrestha S.K. (2012). Urban and Regional Planning in India. SAGE Publication, New Delhi.
8. American Institute of Certified Planners (2005). Code of Ethics and Professional Conduct
9. Institute of Town Planners, India (2024). Memorandum Articles of Association and Byelaws. New Delhi.
10. Shroff Vismay P. (2021). Infrastructure Law and Practice. Notion Press, Chennai.
11. Valverde Mariana (2022). Infrastructure: New Trajectories in Law. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Minor MIP – 41
Course Title	MEGA PROJECTS
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to familiarize the students with the importance and status of Mega Projects as a prime indicator of physical development.
- to strengthen the students about the contemporary challenges in mega projects and various government initiatives at various different levels.

Course Contents

Unit 1: Introduction to Mega Project

Mega project definition, concepts and subject matter; Classification of mega projects: investment based, activity based; Relevance of Mega Projects in Urban Planning; Current status of Mega projects in India; Laws and Theories behind Mega Projects; Political symbolism; Social conflict theory; Types and nature of mega projects: transportation based, industrial, commercial, residential, energy, others, trans-national mega projects.

Unit 2: Special Mega Projects

Related Concepts: SEZ, Free Trade Zones, Mega projects and urban development and regional development; Cycles in mega project development: Trendsetters, promoters, surge and declines; Waves of mega project innovations; Bilbao effect, Impacts of mega projects and pitfalls, From Mega structures to Megalopolis; City transformations through mega projects; Guidelines for mega projects at national level; Critical Infrastructure requirements for mega projects; Theoretical ideologies towards mega project infrastructure provisions.

Unit 3: Mega Projects and Planning

Mega projects as instruments of urban planning and development; Mega projects as instrument of social and environmental changes; Environmental and land acquisition issues in mega projects; Mega project development policies for multiplexes and hotels, Mega industrial parks; Agriculture mega projects, Mega housing projects, Super mega projects, Special economic zone; Dry ports and free ports, Theme parks; Private and community sector participation in mega projects, challenges and potentials of mega projects; Project planning & development in urban & regional context.

Unit 4: Models for Finance for Mega Projects

Finance for mega projects; Private Sector participation in mega projects; Mega projects and environment implications; Mega projects and displacements issues; National Rehabilitation and resettlement policy 2007 for project affected families; National/international Case studies of mega projects: Dams, Airports, Ports, SEZ, Amusement parks, Commercial developments, problems, prospects and policy reforms for developmental displacements in India; Rehabilitation measures post displacement; Case studies of displacement and rehabilitation (Sardar Sarovar Dam, Statue of Unity, Hangzhou, China).

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge about the concept, classification and current status of the mega projects.

- to understand the theories of mega project development.
- to make the students familiar with guidelines of mega projects developed by the centre and state government for different types of mega projects.

References:

1. Hugo P. (2008). Decision making on Mega projects, cost/benefit analysis, planning and innovation. Elgar publication, London.
2. Kris O. (2001). Globalization and urban change, capital, culture and Asia Pacific Megaprojects. Oxford University Press, Oxford.
3. Timothy Moss (2000). Urban Infrastructure in Transition: Networks, Buildings, Plans. Earthsian Publisher, England.
4. Ganesan S. (2001). Infrastructure Development and Financing. Kanishka Publishing, New Delhi.
5. Kundu A. (2000). Inequality Mobility and Urbanization: China & India. Manak Publications Pvt. Ltd., New Delhi.
6. Singh K. (1997). Integrated Urban Infrastructure Development in Asia. Oxford and IBH Publishing Co, New Delhi.
7. Verma S.P. (2004). Infrastructure in India's Development: Power, Transport and Communication. Institute of Public Administration, New Delhi.
8. Potter R. (1985). Urbanization and Planning in the 3rd world: spatial perceptions and public. Institute of Local Government Studies, University of Birmingham.
9. Ajam Mounir A. (2020). Leading Mega Projects: A Tailored Approach. Auerbach Publications, Florida.
10. Drouin Nathalie and Rodney Turner (2022). Advanced Introduction to Megaprojects. Edward Elgar Publishing, Basel.
11. Favari Edoardo and Franca Cantoni (2022). Complexity and Sustainability in Megaprojects. Springer Nature, Berlin.

Recommended Journals

1. Fawaz M., Eduardo Marques, Nik Theodore, Liza Weinstein and Joanna Kusiak (2020). International Journal of Urban and Regional Research. Wiley Publications, New Jersey.
2. Flyvbjerg Bent (2014). What You Should Know About Megaprojects and Why: An Overview, Project Management. Sage Journals.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.8.: Two-Year M. Plan/ M. Tech (Real Estate Development)

Program Objectives

- To develop knowledge and skills for planned growth of the real estate industry, its ecosystem and for its life cycle sustenance
- To understand tools, techniques, technologies, markets, and core services in the real estate sector for effective utilisation of resources
- To provide for specialised and skilled professionals qualified for varied real estate professional roles and employment opportunities.

Program Outcomes

- Ability to apply real estate sectors and its components know-how, supporting informed decision making with qualitative and quantitative analysis and in favour of planned and sustainable development.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (ReED-21)	Real Estate Economics and Economic Development	2	1	0	3
	Major (ReED-22)	Real Estate Project Financial Appraisal	2	1	0	3
	Minor (ReED-21)	Land Management	1	1	0	2
	Minor (ReED-22)	Special Development Area	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Applied Real Estate Knowledge at Property Level	0	0	4	2
		Planning Studio – 21B Applied Real Estate Knowledge at Property Level	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (ReED-31)	Real Estate Property Development, Market Research and Product Management	2	1	0	3
	Major (ReED-32)	Real Estate Legislation	2	1	0	3
	Minor (ReED-31)	Real Estate Finance and Valuation	1	1	0	2
	Minor (ReED-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A	0	2	0	2
		Thesis Preliminaries				
		Planning Studio – 31B Real Estate Project Formulation and Design	0	0	16	8
Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester					Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (ReED-41)	Facility Management	2	1	0	3
	Major (ReED-42)	Real Estate Models of Renewal and Revitalisation	2	1	0	3
	Minor (ReED-41)	Inclusive Real Estate Development, Affordable Housing and Community Development	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 02 Credits of Integrated First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major ReED – 21
Course Title	REAL ESTATE ECONOMICS AND ECONOMIC DEVELOPMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to familiarize students about basics of real estate and its components, real estate economics, real estate development cycle, role that real estate plays in economic development, related economic policies and fiscal policies that impact the real estate sector covering varied risks.
- to gain basic understanding of economic theory, the analytical tools for decision making and application and learn principles of real estate management.

Course Contents

Unit 1: Introduction to Real Estate

Real estate basics covering key terms, definitions, components, subsectors, stakeholders etc.; Fiscal policy and monetary policy aspects and governance frameworks, esp. with respect to real estate; Macro-economic overview of real estate sector in India, its importance and contribution in India's GDP; Real estate as investment and as commodity, real estate business cycles and its implications; Business practices of real estate sector; Real estate services/ types such as consulting including international property consultants (IPC), valuation, sales, marketing, mortgage, capital markets, transaction services, facilities/utilities management, property dealership/channel partners, funders, investors, large construction developers, etc. and related professional requirements/outcomes; Global purview of real estate economy, income producing real estate assets and investable real estate assets; Major constraints of the sector and factors responsible for gaps covering real estate risks.

Unit 2: Real Estate Economics

In the context of real estate, understand basics of theoretical principles of economics and overview of economic systems; Defining economic resources, resource allocation, type of goods and production economics and its relationship with real estate; Microeconomics principles covering consumption aspects (indifference curves, consumer surplus, elasticity), price mechanisms and determinants, basics of theory of demand and supply and equilibrium and price adjustments, changing demand and market conditions, elasticity of demand & supply, combining demand and supply, substitution and utility, importance of time; Introduction to real estate products, its cost and prices, theories of rent, meaning of profit and theories of profit especially for organisations/entrepreneurs and economies of scale covering externalities; Understanding of use of economic theories models and tools especially to understand issues in the sector. Economic agents and stakeholders in the real estate sector.; Examine real estate scenarios (covering city systems, city sizes & prices), dynamics (including real estate boom and bust) and gain understanding of its importance. Introduction to theoretical and practical functioning of real estate sector covering determinants of locational aspects of residential and commercial sub-sectors and locational choices made by institutions and households. emerging market forces in the real estate sector.

Unit 3: Economic Development and Real Estate Markets

Macroeconomic overview covering components of economy (primary, secondary, tertiary), informal sector in urban economy, parallel economy, and its impacts on real estate and/or

construction sector, functions and role of money, inflation types, its causes and effects and control measures, types of savings and investments and determinants of savings and investments and its relationship; Understanding with respect to real estate economy; Indian and international economy of real estate, of GDP and growth and related construction sector, aggregate demand, aggregate supply. Inflation and expectations, cost of living indices, causes and cures of inflation, credit crunch, quantitative easing, and rational expectations. Government policy instruments such as monetary policy, fiscal policy, and understand macroeconomic factors that influence real estate and macroeconomic management.; The real estate sector: the capital and property markets, trends in the real estate sector and perspectives of urban growth and local/ national government policies impact economic development and real estate pricing and price measurement.; Markets, Market Mechanisms and Market Structures; Types of properties (covering housing categories and condition of housing in the country), trends and time-series properties of housing and commercial space markets, stock-flow theory and real estate cycles, expectations, information, and efficient markets.

Unit 4: Economics of Urban Development and Principles of Real Estate Management

Linkage of economics, urban planning, and real estate development: Market forces and development of cities, and impact of economic policies on urban infrastructure, transportation, housing and urban poor. Government expenditures, funding and taxes and applicability to real estate sector; Economics of Residential, Commercial, Retails and other asset classes: Understanding role, demand and supply, location and rents, the highest and best use; Understanding institutions in the real estate sector and basic principles of real estate management.

Course Outcomes: Upon the completion of this course, the students will be able

- to identify key economic parameters, its influence due to economic changes in policies, covering India and globe and remember associated risks.
- to demonstrate an understanding of the complexities of the real estate economics and the real estate development cycle.
- to apply decision making analytical tools/economic models to predict real estate prices and analyse/predict changes/patterns in a city/town/area or to real estate markets.

References:

1. Talinbe A. Raymond, Franklin Obeng-Odoom, Edward Ochieng and Vida Maliene. (2018). Real Estate, Construction and Economic Development in Emerging Market Economies. Routledge, London.
2. Nicholas G. P. (2012). *Real Estate Economics a Point-to-point Handbook*. Routledge, London.
3. DiPasquale, Denise, and William Wheaton. (1995). *Urban Economics and Real Estate Markets*, Upper Saddle River. Prentice Hall, New Jersey.
4. Ling D. C. and R. A Wayne. (2017). *Real Estate Principles: A Value Approach*. McGraw-Hill, New York.
5. Brett Deborah L., and Schmitz Adrienne. (2015). *Real Estate Market Analysis: Methods and Case Studies*. Urban Land Institute, Washington D.C.
6. Jacobus J. Charles. (2009). *Real Estate Principles*. Cengage Learning, Mason.
7. Levy Richard M. (2020). *Introduction to Real Estate Development and Finance*. Routledge, London.
8. Dr. Chaturvedi Sanjay (2021). *The Real Estate Economics*. Saptakala Media Pvt. Ltd., Mumbai.
9. Kaura G. (2023). *Real Estate in India*. Niton Press, Chennai

Recommended Journals:

1. Yavas A., B. W. Ambrose, J. B. Kau and R. K. Pace (2023). *The Journal of Real Estate Finance and Economics*. Springer, Berlin

Course Code	As per Institutional Policy
Nature of Course	Major ReED – 22
Course Title	REAL ESTATE PROJECT FINANCIAL APPRAISAL
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to know-how on sources of finances for real estate development, financial statement analysis and financial management.
- to understand cash flows, profit, and loss, reading of balance sheets, corporate growth strategies and market valuation, IRR calculations, net asset discounting, and pricing of projects.
- to understand concepts like portfolio theory, risk analysis and diversification, WACC, CAPM, for different asset classes, and inter-state projects, commercial and special segment of real estate (hotels, hospitals, and other real estates).
- to understand real estate investment strategies.

Course Contents

Unit 1: Financial Statements

Basic of bookkeeping, accountancy and financial principles, and basics of income statement, balance sheet, cash flow statements, concepts for preparation of final accounts (with and without adjustments), financial Statements as per Companies Act 2013, components of corporate, financial statement analysis and financial ratios. Techniques of financial analysis of investment expenditures for appraisal of projects in a real estate cycle, and scenarios of uncertainty and political/social environment.

Unit 2: Financial Management, Sources, and Cost of Capital

Basics of finance, nature and scope of financial management, financial goals and real estate firms' objectives, corporate governance, and financial management of the firm. Understand time value of money, present value and future value of money, impact of inflation on financial decision making and financial crises aspects; Techniques of Capital Budgeting - NPV, IRR, MIRR, PBP, ARR and their application to real estate sector including entrepreneurial finance. Concepts of business combinations such as amalgamation, merger, demerger, arrangement and restructuring, and business risk assessments. Basics of tangible and intangible assets covering nature, classification, life, function, and purpose of asset related to real estate sector/property.; Basics of sources of capital and its types (including Indian and global players): equity, debt, hybrid financing (equity shares / preference shares / debentures/ term loans and other capital instruments such as bonds, real estate investment trusts etc.); Capital Markets (IPO/ FPO / public debt), Institutions of capital market; Indian equity markets: regulations and efficiency. ; Sources of debt finance, (including Indian and global players) its instruments, systems, and institutions with respect to real estate sector.; Cost of Capital: Opportunity cost, Cost of Equity (Capital Asset Pricing Model and Dividend Yield Model), Debt (Valuation of Bonds and Yield to Maturity) and Preference share capital, Weighted Average Cost of Capital.

Unit 3: Real Estate Investment Strategies

Real estate investment strategies across varied asset classes and special segments of real estate covering hotel, hospital, and others.; Fiscal aspects of subsidizing affordable housing sector covering lower income groups, economically weaker sections (EWS) (including development by private sector/public sector); Business risks and financial risks, basics of real estate

leverage, concepts of tax planning covering tax implication with respect to sources of capital and issues in taxes. Entrepreneurial finance and basic of setting up new business in real estate sector. Issues/challenges of running a real estate corporate firm that impact investment strategies

Unit 4: Real Estate Technologies

Basic financial technologies in India and globe, esp. that impact real estate development. Technologies specifically utilised in real estate development, construction and facility management, its usage, innovation aspects, varied institutional aspects of data collation technologies related to real estate

Course Outcomes: Upon the completion of this course, the students will be able

- to understand financial assessment of various projects, risks involved and remember appraisal principles and concepts
- to gain ability to assess real estate investment strategies and analyse price, risk, and worthy returns
- to develop ability to prepare a financial model for property development based on cash flows

References:

1. David I. (1996). Property Development: Appraisal and Finance. Springer, Berlin.
2. DeChesare B. (2019). Real Estate Financial Modelling (REFM): The Ultimate Guide, with templates and examples. Routledge, London.
3. Benedetto Manganelli (2015). Real Estate Investing, Market Analysis, Valuation Techniques, and Risk Management. Springer, Berlin.
4. Saul D. Klein, John Reilly, Mike Barnett, Michael Barnett, Saul Klein. (2004). Real Estate Technology guide, Dearborn Real Estate Education.
5. Delprete Mike (2024). Adventures in Real Estate Technology. Blurb, Washington.
6. Knickerbocker Kelly (2022). Real estate tech's emerging technology landscape. Pitchbook, Washington.
7. Blokdyk G. (2021). Real Estate Technology: A Complete Guide, Practical tools for self-assessment. Real Estate Technology Publishing.
8. Palgrave MacMillian, Dror Poleg. (2020). Rethinking Real Estate: A Roadmap to Technology's impact on the World's largest asset class. CRC Press, New Jersey.
9. Appraisal Institute. (2020). The Appraisal of Real Estate. Appraisal Institute, American.

Course Code	As per Institutional Policy
Nature of Course	Minor ReED – 21
Course Title	LAND MANAGEMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to gain understanding on land development, management aspects and on land disposal or transfer mechanisms for development

Course Contents

Unit 1: Introduction to Land Development and Governance

Basics of land development, land markets and land characteristics aspects. Overall land policies and land development models and relationship with other sectors; Techniques of land assembly, development components and various approaches such as land pooling, land readjustment, TP schemes, PPPs in real estate. Role of private sector in land assembly and various township development. Financial balance sheet of land development.; Urban planning, land administrative boundaries and land governance structures in India, the significance of 74th and 73rd CAA; 74th CAA and the urban local bodies, role and functions of the urban development authorities, industrial development authorities and other important central government parastatals instrumental in urban development. With respect to real estate sector, understand the Indian urban planning framework, hierarchy of physical planning systems, State Town Planning Acts, and the overview of statutory aspects of planning related to land.

Unit 2: Land Management Systems

Understanding land as a property, private ownership and social control over land, and the need of land management; Land management definitions, policies, issues and challenges and risks.; Land revenue systems, land records, its methods and current scenario, its management aspects in India and few global examples; Traditional maps, Land titles, land measurement units and land management systems and practices; In line with UN conventions, ways of achieving land degradation neutrality and ideate upon climate change and land and long-term actions for land management practices for co-eco system benefits and reduction of negative impacts.

Unit 3: Land Management Technologies

Land information systems and technologies covering land data registers, land tenures, land value, land use, cadastral mapping, topographical mapping, natural resource mapping, utility mapping and coordinated land information management and land monitoring aspects (covering tools, techniques, and technologies such as GIS/Block Chain/AI/Big Data/ remote sensing/drones)

Unit 4: Land Disposal Mechanisms and Systems

Land disposal mechanisms, issues, and challenges.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand and analyse land management tools and techniques
- to gain practical know-how to apply land assembly tools
- to gain ability to analyse appropriate technologies for land management

References:

1. Sarkar P. K. (2019). Law of Acquisition of Land in India (Including Requisition & Acquisition of Immovable Property). Eastern Law house, New Delhi.
2. The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act 2013
3. Land Based Fiscal Tools and Practices for Generating Additional Financial Resources (2013). Ministry of Urban Development. Government of India, New Delhi.
4. Model Guidelines for Urban and Policy. (2013). Town and Country Planning Organization report. Government of India, New Delhi.
5. C. Sanjoy. (2013), The Price of Land: Acquisition, Conflict, Consequence. Oxford Press, New Delhi.
6. A.A.A Faizi and H.C. Behera. (2014). Land Records Management in India: A Plea for Reforms. Concept Publishing Co. Pvt. Ltd, Delhi.
7. *Government of India. (1872). Indian Contract Act No. 9 of 1872. Government of India.*
8. Government of India (1882). Transfer of Property Act. Government of India.
9. J. Ammar and Mehdi Mili Blockchain. (2024). Technology in Real Estate: Potential Future and Challenges. Springer, Berlin.
10. Vidhya D. and G. Shyam Sunder. (2023). Property Registration, Land Records and Building Approval procedures followed in various States in India,
11. M. Gaurav, Krishna Giri, Sanjay Singh, Manoj Kumar. (2024). Sustainable Land Management in India: Opportunities and Challenges. Springer, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Minor ReED – 22
Course Title	SPECIAL DEVELOPMENT AREA
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various special development areas such as SEZ (residential, commercial, and industrial mix), Town Planning Schemes, etc with respect to real estate development.

Course Contents

Unit 1: Understanding Special Development Area - Master Plans

Understanding a Master plan's provisions, bye laws, development control guidelines, development plans and zoning in these Special Development Areas/Zones; Integrating these Special Areas/Zones to Urban/Urban Regions; Governance in the Special Development Areas: Local Self-Government, State Government/State Government Autonomous Organisations/Private.

Unit 2: Special Area Development

Typology of Special Development Areas: FTZ, SEZ, Investment Zones, New Mixed Townships, Industrial Townships, Specialised Industrial Areas (ex: Diamond Zone, IT Zone, etc); Laws under which these Special Development Areas/Zones/Townships are formed(Examples: CIDCO/NOIDA/GNOIDA/SIPCOT/Investment Zone, Private SEZs: Mahendra/L & T/Reliance/Mundra); Understanding evolution, typology of special development areas, covering town planning schemes, Special economic Zones (SEZs); Global perspectives of SDAs; Best Case Studies from Gujarat, Madhya Pradesh, Maharashtra, Tamil Nadu, and other states.

Unit 3: Real Estate Applications under SDA

Samples of application of SDAs in few States; Variations from Central SEZ and other Acts by State Governments: its modalities, and imperative and implementation aspects; Contestations/Conflicts in management of SDAs, between SDAs/SEZs/Investment Zones and Local Self-Governments and resolutions and integration; Pricing of SDAs/SEZs/Investment Zones and TPS.

Unit 4: Policies related to SDA

Guidelines, policies, special provisions, frameworks etc. encompassing this development; Models of Land and Real Estate Models within the SDAs/SEZs/TPS/Investment Zones; Best Case studies: Gujarat, Maharashtra, Tamil Nadu, UP, and other states.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand special development areas, especially SEZs, zoning, town planning schemes, etc.
- to analyse SDAs especially with respect to application to real estate sector context.
- to use applicable SDA know-how for real estate applications and/or subsectors and/or subcomponents.

References:

1. Aggarwal Aradhna (2007). Impact of Special Economic Zones on Employment, Poverty and Human Development. Working Paper No. 194. Indian Council for Research on International Economic Relations (ICRIER), New Delhi.
2. Palit Amitendu and Subhomoy Bhattacharjee (2008). Special Economic Zones in India: Myths and Realities. Anthem Press, New Delhi.
3. Ministry of Commerce and Industry (2006). Special Economic Zones in India: SEZ Rules and Amendments. Department of Commerce, Government of India.
4. M. Arpita, Parthapratim Pal, Saubhik Deb, Subhobrota Ray, Tanu M Goyal. (2016). Special Economic Zones in India. Springer, Berlin.
5. Jain V. (2019). Examining the Town Planning Scheme of India and Lessons from Land Readjustment in Japan. ADBI Working Paper 1037. Asian Development Bank Institute, Tokyo.
6. Sanyal Bishwapriya and Chandan Deuskar (2012). A Better Way to Grow? Town Planning Schemes as a Hybrid Land Readjustment Process in Ahmedabad, India. In Value Capture and Land Policies. Lincoln Institute of Land Policy, Cambridge, Massachusetts.
7. Shahim Abdurahiman, A. K. Kasthurba (2022). Urban Conservation of Heritage-Sensitive Zones in India: A Methodological Approach. Springer Nature, London.
8. Sinha A.K., C.P. Goyal, O.P Arora and Mayank Sharma (2023). Special Economic Zones/ EOUs/ ETHPs & STPs Law and Practice. Commercial Law Publishers, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents:

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO-2A APPLIED REAL ESTATE KNOWLEDGE AT PROPERTY LEVEL
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand and gain ability to apply real estate sector and its components knowledge for site specific analysis by use of varied software and hardware

Course Contents

Several software's support the real estate industry, of this bouquet, ones required for data analytics, site specific understanding, construction purposes and for the purposes of running successful commercial operations of real estate sector, pricing of real estate products, pricing of land and property, software for land due diligence and monitoring, etc. shall be introduced for know-how and hands-on training as applicable in-conjunction with the studio exercise requirements. Specific knowledge of hardware used in the real estate sector/construction sector/build environment sector shall be introduced and market survey related to material, cost aspects and appropriate utilisation shall be introduced including site and market survey. Individual assignments to be carved out for students, which can address varied components of the real estate life cycle to gain overall understanding of numerous components to be carried out by the class collectively and co-learning.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate use of software's and/or hardware utilised for real estate development and/or real estate analysis and interpretation at site level/property level covering real estate components and know-how of real estate imperatives on construction, costing, pricing, land/property due diligence and other aspects.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO-2B APPLIED REAL ESTATE KNOWLEDGE AT PROPERTY LEVEL
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand basics of real estate development, its life cycle, its subcomponents such as utilities and facilities, role of land, issues related to land, and land management strategies for planned real estate development, role of financial planning and management for optimum real estate development, sector's role in overall economic, political environment and social needs for planned growth and incremental benefits to public

Course Contents

Understanding property and site at the local level starting from identification of site components, constituents of utilities and facilities, externalities, varied surveys required for site assessment, market assessment and its design and testing on ground for capture of information and its analysis thereof, placement of real estate sector's components to derive a life cycle analysis for long-term sustained usage, understanding issues related to property/site/land at local level, situational analysis and allied aspects covering economic, political, social, etc. that impact real estate development shall be understood for informed decision making. Understanding various policies and its impact on property development/ real estate sector shall be excerpted for local and other levels. Financial planning and management characteristics with respect to property/real estate development by a firm/ individual level/as guided under studio exercise shall be understood at a local level. Benefits to public of real estate/property development in a sustainable manner, issues and development gaps to be derived and understood by class. Studio directors can navigate the exercise for specific aspects as well.

Course Outcomes: Upon the completion of this course, the students will be able

- to acquire practical skills in real estate site appreciation covering utilities and facilities and varied market typologies, designing real estate data collection surveys, analysing data, and using findings for informed decision making and policy decisions aspects that supports planned growth.
- to gain understating on real estate sectors role in overall spatial planning especially from socio-economic-political perspectives and impacts of projects and policies.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD – 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major ReED – 31
Course Title	REAL ESTATE PROPERTY DEVELOPMENT, MARKET RESEARCH AND PRODUCT MANAGEMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to gain understanding on various real estate market research concepts, processes, and stages.
- to gain exposure to property development and market fundamentals.
- to understand practical and evidence based real estate project feasibility report development, its processes, real estate property development life cycle analysis cojoined with understanding of business development.
- to familiarize with various risks and uncertainties in the development of real estate projects.
- to gain ability to analyse the highest and best use option for a proposed development.

Course Contents

Unit 1: Real Estate Market Research

Understanding real estate markets, market research needs and data collection requirements and data analysis methods for property development, its importance, stakeholders of market research, outputs to developers (product mix, pricing, demand and project phasing). Understanding market research tools, techniques and technologies covering quantitative statistical analysis, development of econometric models, etc and other advanced property analysis applied knowledge.; Real estate market research process starting from conceptualizing the problem, market placement and delineation, demand requirements and user assessments, supply analysis, and viability and productivity of demand and supply covering gaps in supply and understand interdependencies of risk and return relationships.

Unit 2: Real Estate Property Development and Product Management

Basics of property development, and product conceptualization, stages of property and product development, cycles and history of property development in India, various risk in property development and its mitigation, systems and technologies of property development, stakeholders in property and product development. Understanding typology of real estate products in Indian market and global market across sectors such as industrial, residential, commercial, etc. and product management principles including utility management. Prevalent models of property development and product management and viability of product use (best and optimum). Applicable policies for real estate product mix application. Samples of application in few States, modalities and imperatives of real estate development and implementation strategies

Unit 3: Real Estate Marketing

Understanding market size and share, marketing 4P (place, product, price and promotions), demand drivers covering segmentation, targeting demand and positioning for demand supply gap or addressing futuristics needs, consumer trends on purchase of real estate aligned with values of purchases (low, medium, and high to identify target groups). Understanding

marketing strategies including digital strategies and various other marketing platforms. Effective marketing communication and etiquette. Learning from international marketing strategies and techniques.; Partners to marketing including channel partner/ property brokers and direct to customers/investors, etc.

Unit 4: Feasibility Reports

Technical feasibility reports covering site evaluation (includes site selection assessments) for green field and brown field developments, technical requirements, cost and pricing aspects, development potential, planning essentials including development control and bye law applications, and financial feasibility reports covering holistic approach including pre-construction during construction and post construction aspects of a product proposed to be developed. Few sample report assessments for qualitative report writing.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate different types of real estate products and their behaviour or dynamics in the markets.
- to identify critical steps in property development and apply relevant product mix/property development model and conduct sensitivity analysis
- to apply market research tools to property development, price analysis and product management and infer risk scenarios and uncertainties in property development
- to identify marketing essential for sale of real estate property

References:

1. Leisham Chris. (2003). Real Estate Market Research Analysis. Palgrav MacMillian, London.
2. Brett D.C. and A. Schmitz (2009). Real Estate Market Analysis Methods and Case Studies. Urban Land Institute, Washington.
3. Fanning S.F. (2005). Market Analysis for Real Estate: Concepts and Applications in Valuation and Highest and Best Use, Appraisal Institute.
4. Reed R. and S. Sims (2015). Property Development. Routledge, London and New York.
5. Geltner D., N. Miller, J. Clayton and P. Eichholtz (2007). Commercial real estate: Analysis and investments, Cengage Learning, New Delhi.
6. Rena Mourouzi Sivitanidou. (2020). Market Analysis for Real Estate. Routledge, London.
7. Peiser Richard B., Suzanne Lanyi Charles, Nick Egelanian, Sofia Dermisi and David Allen Hamilton (2022). Professional Real Estate Development: The ULI Guide to the Business. Urban Land Institute, Washington D.C.
8. Ar. Patil Pallavi, Dr. Adv. Harshul Savla (2022). Real Estate Marketing: 360° Traditional & Digital Strategies. Notion Press, Chennai.
9. Jawaid N. (2023). Real Estate Development Feasibility Study: The Ultimate Guide. Notion Press, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Major ReED – 32
Course Title	REAL ESTATE LEGISLATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand real estate legislations, history of land acquisition, the Real Estate Regulation Act (RERA), 2016 know-how and its various application dimensions especially its facilitation the consumers/users, and developers.
- to understand land acquisition laws and associated issues and risks with their regulations in various states (plain areas, hilly areas, tribal areas, and Resettlement Act).

Course Contents

Unit 1: Land laws and Legislations Applicable to Real Estate Sector

Salient features of Indian constitution, understanding land a legal right for property owner, concepts of law, legislation, ordinance, bills, acts, regulations, guidelines, policies, and bylaw examples from various states and union territories and other housing legations impacting real estate development; Transfer of Property Act, 1982 (transfer of immovable, property, sale, mortgage, gifts, exchange, assignment, charge, lien,), Standard Property Contract documents (Sale/ Lease Deed); Various Land Laws, regulations and rights involved, property tax, Transfer of property Act, stamp Act, registration Act, RERA, rent control, Apartment acts, Benami Act. Regulatory framework of land in India. Basic of company law 2013, taxation aspects and application to real estate sector, right of way and section 52 -Licenses under Indian easements Acts, 1882,

Unit 2: Land Acquisition

Understanding land acquisition, its history, processes, statewide nuances, LARR -2013, LARR salient features, basics of eminent domain & compulsory acquisition; rehabilitation and redevelopment policies, Social Impact Assessments.; authorities and agencies involved. Impact of LARR on real estate and large development projects by private sector and Public Private Partnerships e.g., public housing, National Highways, Railways, Airports, SEZs etc. and SDAs.

Unit 3: Contracts in Real Estate Sector

Type of contracts and agreements with respect to real estate sector, and governance aspects. Contract documents (Sale/ Lease Deed); principles of agency; powers of an agent; actual and implied authority; termination of agency; agreement to sell and sale agreement; standard form contracts. Basic of Indian contract act; contract and its validity; void and voidable; misrepresentation and frauds, breach of contract; remedies for breach; specific performance and other provisions; Torts. And effects of contracts /torts on real estate sector/valuation; Dispute categories, processes of dispute resolution, dispute resolution mechanism. Arbitration and Conciliation Act 1996, amicable settlements, performance-based contracting, partnering, etc.

Unit 4: Few Examples from Indian States and Globe

Project case studies covered on the above mentioned 3 units, to exemplify from across the Indian states and global examples, and gain understanding of issues, challenges, impacts and mitigation methods.

Course Outcomes: Upon the completion of this course, the students will be able:

- to appreciate the imperatives of Land Acquisition and Resettlement Act and understand its implications towards implementation. in real estate sector in India.
- to appreciate Real Estate Regulation Act (RERA),2016 as an essential regulation to be in the real estate sector.
- to appreciate decision making aspects and concepts pertaining to company laws and taxation for real estate sector.

References:

1. F. White and Sachn Mittal. (2019). A 2 Z of Real Estate in India. White Falcon Publishing, SAS Nagar.
2. Dr. Adv. Savla Harsh. (2021). Real Estate Laws: Compendium of Indian Real Estate Laws, Notion Press, Chennai.
3. Ministry of Law and Justice (2013). The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013. Government of India, New Delhi.
4. Ministry of Law and Justice (2016). The Real Estate (Regulation and Development) Act, 2016. Government of India, New Delhi.
5. Ministry of Law and Justice (1872). The Indian Contract Act, 1872. Government of India, New Delhi.
6. Ministry of Corporate Affairs (2013). Companies Act, 2013. Government of India, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Minor ReED – 31
Course Title	REAL ESTATE FINANCE AND VALUATION
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand housing finance (Fiscal and Financial markets) operates in India, its components (formal and informal), Market valuation, Regulator(s) and their role in housing finance, and its operations that are carried out in various types of housing finance organisations: - partnerships, joint venture structuring, leaseback, and other development financing, both bridging and permanent, on deal viability.

Course Contents

Unit 1: Real Estate Finance Aspects

Understand housing finance (fiscal policies and financial markets) in India, formal and informal housing finance, regulator's role in housing finance and stakeholders in housing finance. Issues and gap areas in real estate finance.

Unit 2: Real Estate Valuation Basics

Basics elements and principles of valuation (income approach, market approach and cost approach to valuation), methods of real estate asset valuation, importance of valuation, keys terms in valuation. Understanding market value, investment value and fair value, valuation processes, data collection, analysis and report making aspects, players in valuation, global purview of valuation. Valuation of real estate components and approaches to valuation esp. quantitative, decision making on developer's profit and take over strategies of real estate's business, construction of use of valuation tables. Valuation application covering Michael porter's five forces of business analysis (S.W.O.T, PEST, GE/McKinsey matrix, ADL matrices).

Unit 3: Professional Ethics in Valuation

Professional standards and ethics in valuation profession for individuals and organisations. Model code of conduct under the companies' rules, 2017 (registered valuers and valuation), Global valuation aspects. Current framework and regulations of valuation profession in India, role of Insolvency and Bankruptcy Board of India (IBBI) as professional regulator and its provisions for real estate valuers. Exposure to preparation of valuation reports, style (structure, components, contents, imperatives, and quality) to writing a valuation report, professional valuer aspects.

Unit 4: Valuation Judicial Cases

Basic of valuation for specific situation such as distressed asset valuation, start up valuation, valuation of cyclical firms, valuation of investment entities and insurance coverage. Judicial cases in real estate sector and valuation such as R.C. Cooper versus (Vs.) Union of India (1970), Miheer H. Mafatlal Vs. Mafatlal Industries (1997), G.L. Sultania and another Vs. the Securities Exchange Board of India (SEBI) (2007), Jawajee Nagnathan Vs. Revenue Divisional Officer (1994)

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate housing financial markets as compared to general financial markets,

- to appreciate market valuation process and its requirements for real estate valuation

References:

1. Datta S. (2018). Mastering Real Estate Valuation. Syamles Datta.
2. Micheal C. Thomsett and Joshua Kahr. (2005). Real Estate Market Valuation and Analysis. J. Wiley & Sons, New Jersey.
3. D. Scarrett and Sylvia Osborn. (2008). Property Valuation: The Five Methods, Routledge, Taylor and Francis, London and New York.
4. B. Andrew, M. David, N. Nick. (2017). The Income Approach to Valuation, Routledge, Taylor and Francis, London and New York.
5. Nanavati R. (2016). Theory and Practice of Valuation, Lakshmi Book Depot, Mumbai.
6. Rangawala S.C. (2024). Valuation of Real Properties, Chatwar Publishing House, Anand.
7. Royal Institute of Chartered Surveyors. (2021). RICS Valuation: Global Standards
8. Brueggeman William and Jeffrey Fisher (2024). Real Estate Finance & Investments. McGraw Hill, New York.
9. Jason G. Goddard. (2022). Real Estate Valuation: A subjective Approach, Routledge, London.
10. Dr. Adv. Savla Harsh. (2021). Real Estate Valuation, Notion Press, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Minor MTP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis, and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance, and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Qualitative and Quantitative Research, and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing, and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications, and Validation

Definition of Concept, Theory, and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications, and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD – 31
Course Title	PLANNING STUDIO - 3A THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake an independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD – 31
Course Title	PLANNING STUDIO - 3IB REAL ESTATE PROJECT FORMULATION AND DESIGN
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the application of planning principles and concepts of infrastructure at city metro city to local level and how the infrastructure is planned and facilitated. Here infrastructure provision, service maintenance and how to write the contract documents for service maintenance are being taught. The evaluation of final studio examination shall be done both by external & internal examiners jointly.

Course Contents

Understanding real estate property at an area/ regional level, identification of infrastructure components beyond real estate property at local site level and its provisioning aspects, governance aspects, understanding master plan aspects, bye laws relevant to real estate sector and its application, asset inventory characteristics, asset maintenance aspects and its impacts, services and facilities aspects and impacts, delivery of asset, services and facilities and monitoring aspects and its impacts, varied other contractual aspects tied to real estate sector development, requirements of approvals, regulation aspects and stages of regulatory processes and clearances, issues and constraints with respects to development and approvals, sustainable built environment. This exercise shall be guided by studio director and shall be developed in-conjunction with the skill studio for practical learning aspects.

Course Outcomes: Upon the completion of this course, the students will be able to

- to apply knowledge to submit project synopsis consisting of project planning application and feasibility of the project.
- to design a system, its component, or process to meet desired needs within realistic constraints such as economic, environmental, social, safety and sustainability.
- to identify, formulate, and solve development issues vis a vis development guideline of various programmes/Schemes.
- to prepare infrastructure plan for the given area, gain knowledge and ability to deliver and maintain and the same through service agency (agencies) and vide several contract systems.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents:

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major ReEd -41
Course Title	FACILITY MANAGEMENT
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand of infrastructure utilities and facility management systems with respect to real estate property asset covering components of energy, water, waste, drainage, and digital infra, etc.
- to understand Course intends to make impacts of poor management, issues and challenges in facility management be understood for effective facility management and varied aspects for proper implementation and asset operation, maintenance, and management.

Course Contents

Unit 1: Facility Management

Facility management overview, concepts, and terms with respect to real estate sector asset/property covering domains of operation, maintenance, project management, business finance, leadership, compliances and opportunities in this subsector.

Unit 2: Asset Management Life Cycle Framework

Asset management life cycle and its components, issues with respect to life cycle of facility management covering asset/components inventory, condition assessments, acquisition, disposal, liabilities, technologies, replacements, cost and audit aspects, issues in operations and maintenance and emergency preparedness for business continuity and resolution of conflicts. Capital improvement planning, high performance operations

Unit 3: Value Engineering Aspects in AOMM

Concepts of asset operation, maintenance and management, efficiency and value engineering aspects including renewal reconstruction and rehabilitation and construction demolition and its handling, monitoring parameters and techniques, legal and statutory compliances in facility management/AOMM. Understanding of facility management/AOMM strategy for business entities/organisations. Guidelines with respect to facility management.

Unit 4: Risk in AOMM

Risk and management in real estate sector and interconnection with construction sector and operation phases, disaster preparedness, legal regulations, and statutory compliances.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand and identify components of infrastructure and utilities management and prepare strategies for implementation with use of digital infrastructure.
- to remember items of inventory and physical verification of plant, machinery and equipment and other components of facilities and/or utilities for effective asset operation, maintenance, and management

References:

1. Kathy O. Roper, Richard Payant. (2014). Facility management handbook. Amacom Books, New York.
2. Dan L. (2017). The Complete Guide to Facility Management. Createspace Independent Publication, California.
3. David G. Cotts and Edmond P. Rondeau. (2007). The Facility Manager's Guide to Finance and Budgeting. Harper Collins Focus, Nashville.
4. Waheed U., W Ronald, Hudson and Ralph Haas. (2nd Edition). Public Infrastructure Asset Management. Tata McGraw hill, New York.
5. Clive D. (2010). Strategic Asset Management: The Quest for Utility Excellence. Matador, Leicester.
6. Nail S Grigg. (2002). Water and Wastewater and stimulate Infrastructure Management. CRC Press, Florida.
7. Barry H. and Nick Nunnington. (2010). Corporate Real Estate Asset Management. Routledge, London.
8. Then Dany S.S. (2004). Facility management and the business of managing assets. Routledge, London.
9. Jane M. Wiggins. (2021). Facilities Manager's Desk Reference. Wiley Blackwell, New Jersey.
10. Skip Smith, Tim Adams, Chad E. Beebe. (2020). Introduction to Health Care Facilities Management. American Society for Health Care Engineering.
11. William J. Stevenson. (2022). Operations Management. Tata McGraw hill, New York.
12. Dr. Adv. Savla Harshul and Ar. Pallavi Patil (2021). Facility Management: Indian & Global Best Practices. Notion Press.
13. Campbell John D., Andrew K.S. Jardine, Joel McGlynn and Don M. Barry (2024). Asset Management Excellence: Optimizing Equipment Life-Cycle Decisions. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Major ReEd - 42
Course Title	REAL ESTATE MODELS OF RENEWAL AND REVITALISATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to gain knowledge on revitalisation of deteriorated/damaged land which can be unlocked for spatial development, and other specific areas such as historical spaces and their renewal for real estate development purposes and urban area expansion or redesign.

Course Contents

Unit 1: Urban Renewal and Redevelopment

Concepts of Renewal and Redevelopment: Typology: renewal, revitalization, urban conservation, retrofitting, adaptive reuse, conservative surgery; Brownfield development versus greenfield development; Regulatory framework for development in and around historic precincts; Regulations for change of land uses for defunct precincts; Incentives for developing brownfield sites; Government's Policy for Renewal and Redevelopment.

Unit 2: Real Estate Rebuilding Product Mix

Economic Regeneration, Funding, Social and Community perspective; Regeneration by land development; Product mixes in adaptive re-use of historic precincts; Use of surplus land with compatible uses; Costs of repair and maintenance of historic precincts; Revenue sources from new uses; Role of private sector as development partners; Role of private sector as operating partners; Models and scenario analysis of adaptive reuse versus demolition and rebuilding.

Unit 3: Real Estate Models for Brownfield Development in Urban Cores

Best use option studies for derelict precincts; Comparative analysis of different models of redevelopment; Tools for renewal and redevelopment: TDR, TPS, TOD, and other planning tools; Product mix development for vacant lands in urban core and derelict sites; Types of partnerships for developing on brownfield sites: Joint ventures, SPVs, lease model etc; Judicial Decisions on Brownfield renewal and redevelopment: Product Mix; Case studies in India: Kanpur, Delhi, Mumbai, Ahmedabad, Chennai and other cities; Slums, Industrial Land Renewal, Degraded land, and other land.

Unit 4: Global Practices in Urban Renewal and Revitalisation

Global practices: Developed and Developing countries: urban renewal, revitalisation, and redevelopment methods, land mechanism, frameworks, policies, public, private and PPP models, private incentives, product mixes.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate urban renewal and revitalization tools for real estate development to unlock areas for planned spatial development such as historic areas.
- to appreciate the tools and regulations in this above and specially targeting industrial and redevelopment areas.

References:

1. Berry, Jim, Stanley McGreal and Bill Deddis (2014). Urban Regeneration: Property Investment and Development. Taylor & Francis Ltd. London.
2. Roberts Peter and Sykes Hugh (2008): Urban Regeneration: A Handbook. Sage Publishers, London.
3. Grodach Carl and Ehrenfeucht (2015). Urban Revitalization: Remaking cities in a changing world. Routledge, London.
4. Kulshrestha S.K. (2018). Urban Renewal in India: Theory, Initiatives and Spatial Planning Strategies. India Books and Periodicals, New Delhi.
5. Andrea C. and Marco Dall’Orso (2021). Urban regeneration and real estate development. Springer, Berlin.
6. Ali C. (2023). Mapping Urban regeneration. Springer, Berlin.
7. Holwitt Pablo (2020). Urban Renewal in India: Accommodating People, Ideas and Lifeworlds in Mumbai’s Redevelopment Chawls. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Minor ReED – 41
Course Title	INCLUSIVE REAL ESTATE DEVELOPMENT AFFORDABLE HOUSING AND COMMUNITY DEVELOPMENT
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand about the housing crisis and affordable housing and impart an understanding about co-production of housing with various actors in India.
- to learn about community development strategies that can be incorporated and extended beyond provisioning of affordable housing and covering government policies (central and states)

Course Contents

Unit 1: Affordable Housing Policies and Inclusivity

Chronological development of housing policies, especially for affordable housing in India; Shift of government's role: Welfare, Basic Need, liberalisation, affordable housing to Housing for All: from provider to facilitator; Current policies and schemes for housing sector in India; governance systems under Housing Policies in States; VAMBAY, Redevelopment, Greenfield Projects, etc.; Case Studies: Maharashtra, Tamil Nadu, Uttar Pradesh, Odisha, Kerala, Andhra Pradesh, Gujarat, Jharkhand and other States.

Unit 2: Role of Private Developers

Role of private sector in affordable housing supply; Supply side constraints and barriers; Supply side incentives for developing affordable housing; Land as a resource; Cross subsidy models; Fiscal incentives; PPP models for affordable housing, models involving private land, private land subsidized housing in association with PMAY(U); Case Studies.

Unit 3: Innovative Models of Inclusive Real Estate and Community Development

De-densification as a tool; redevelopment versus upgradation; FSI/FRA concessions; Assisted self-help housing; Design optimization by users; Material innovations by users and suppliers; Innovations for cost reduction; Innovation in affordable housing finance.

Unit 4: Indian and Global Practices

Indian Best Practices for Affordable Housing: Public, Private, PPP, and NGOs; Global Best practices in inclusive real estate development; Frameworks and supportive policies/ incentives and others: Fiscal and Financial Policies.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate various government programmes, market responses to these programmes and other related aspects.
- to appreciate communities' responses to affordable housing and their coping mechanisms with a gamut of public and private affordable housing programmes.

References:

1. Amanda Clack and Judith Gabler (2019). Managing Diversity and Inclusion in the Real Estate Sector. Routledge, London.
2. Peiser Richard B. (2019). Professional Real Estate Development: The ULI Guide to the Business. Urban Land Institute, Washington D.C.
3. Lang LaSalle Jones (2016). Affordable Housing in India: Key Initiatives for Inclusive Housing for All. Jones Lang LaSalle (JLL), India.
4. Valambhia Keval (2024). Affordable Housing: A comparative Analysis of India and China's Efforts. CREDAI, Delhi.
5. Thornton Grant (2021). Affordable Housing in India. Grant Thornton, India.
6. Housing and Urban Affairs Ministry of (2022). Discourses on Affordable Housing and Best Practices under PMAY-U. 'Housing for All' Mission Directorate. Ministry of Housing and Urban Affairs, Government of India, New Delhi.
7. Padmini Ram, Malcom Harper (2020). The Affordable Housing market in India: Institutional constraints, informal sector and privatisation. Routledge, London.
8. Urmi S., Annapurna Shaw, Debolina Kundu (2024). Housing India: Programmes, Policies and Governance. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to Enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to Advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to Improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to Increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to Experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.9.: Two-Year M. Plan/ M. Tech (Spatial Information System)

Program Objectives:

- This programme is to equip the students to educate the spatial information system is being carried out in India currently and to prepare the spatial plan for the future based on technology and spatial software applications.
- Various spatial scales, sectors and levels are taught from Village to Region Level through studio exercises in this course.

Programme Outcome

- After completing this course, a student will be able to prepare a digital spatial plan from village to region level. They can get employed from District Development Authority to Regional level in Government, Private Sector, NGOs and other bilateral and multilateral organizations.

OUTLINE SCHEME

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SIS-21)	Geospatial Data Mining and Spatial Computing	2	1	0	3
	Major (SIS-22)	Spatial Data Analytics and Data Science	2	1	0	3
	Minor (SIS-21)	Citizen Science and Smart Spatial Technologies	1	1	0	2
	Minor (SIS-22)	Big data Analytics	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 2A Spatial Information Systems for Urban Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SIS-31)	Environmental Regions and Spatial Data Analytics	2	1	0	3
	Major (SIS-32)	Crowd Sourced Data and Spatial Analytics	2	1	0	3
	Minor (SIS-31)	Unmanned Aerial Vehicle for Spatial Planning	1	1	0	2
	Minor (SIS-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 3A Thesis Preliminaries	0	2	0	2
		Planning Studio – 3B Spatial Information Systems for Regional Planning	0	0	16	8
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SIS-41)	Geospatial Modelling and Simulation	2	1	0	3
	Major (SIS-42)	Spatial Information Governance Policy and Legislation	2	1	0	3
	Minor (SIS-41)	Natural Resource Management Systems	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Total Credits: 20 Credits of Integrated First Semester + 60 Credits = 80 Credits

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Major SIS - 21
Course Title	GEOSPATIAL DATA MINING AND SPATIAL COMPUTING
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to provide a comprehensive foundation in geospatial data mining and spatial computing, enabling students to extract valuable insights from geospatial data and apply them to real-world problems.

Course Contents

Unit 1: Introduction to Geospatial Data Mining

Overview of geospatial data mining and spatial computing; Types of geospatial data and their characteristics; Data pre-processing and quality control; Introduction to spatial data mining techniques

Unit 2: Spatial Data Mining Techniques

Spatial association rule mining, clustering, hotspot detection, classification, outlier detection; Location-based services and mobility data analysis; Environmental monitoring and climate modelling; Urban planning and transportation analysis; Emergency response, public health and disaster management

Unit 3: Spatial Computing and Big Data Analytics

Introduction to spatial computing and big data analytics; Distributed computing and parallel processing; MySQL databases and spatial data storage; Cloud-based geospatial data processing and analytics

Unit 4: Advanced Topics

Deep learning and GeoAI for geospatial data analysis; Geospatial data visualization and communication; Geospatial data mining applications; Emerging trends and technologies for monitoring (IoT, edge computing, etc.)

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the concepts and techniques of geospatial data mining and spatial computing.
- to learn to extract insights and patterns from large geospatial datasets using data mining techniques.
- to understand the applications of geospatial data mining and spatial computing in various fields, such as emergency response, public health, and environmental monitoring.

References:

1. Shekhar S., H. Xiong, and X. Zhou. (2017). Encyclopedia of GIS. In Springer eBooks. <https://doi.org/10.1007/978-3-319-17885-1>
2. Miller H. J., and J Han. (2009). Geographic Data Mining and Knowledge Discovery. CRC Press, Florida.
3. Li D., and S. Wang. (2016). Spatial Data Mining: Theory and Application. Springer, Berlin.
4. Geertman S., J. Ferreira, Jr. R. Goodspeed, and J. Stillwell (2015). Planning Support Systems and Smart Cities. Springer, Berlin.

5. Karimi H. A. (2014). Big data: Techniques and Technologies in Geoinformatics. CRC Press, Florida.
6. McClain B. P. (2023). Geospatial Analysis with SQL: A Hands-on Guide to Performing Geospatial Analysis by Unlocking the Syntax of Spatial SQL. Packt Publishing Ltd., Birmingham.
7. Abdishakur H. (2024). Spatial Data Science. Packt Publishing Limited, Birmingham.
8. Shi W. (2020). Principles of Modeling Uncertainties in Spatial Data and Spatial Analyses. CRC Press, Florida.
9. Shekhar Shashi and Pamela Vold (2020). Spatial Computing. MIT Press, Cambridge.

Course Code	As per Institutional Policy
Nature of Course	Major SIS - 22
Course Title	SPATIAL DATA ANALYTICS AND DATA SCIENCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to provide a comprehensive foundation in spatial data analytics and data science, enabling students to develop skills in spatial data analysis, visualization, and mining techniques

Course Contents

Unit 1: Introduction to Spatial Data Analytics

Overview of spatial data analytics and data science; Spatial data types, structures, and formats; Spatial analysis and software such as Python, ArcPy, and GeoPandas.; Setting up the spatial data science environment (software, tools, etc.)

Unit 2: Spatial Data Wrangling and Preprocessing

Importing, exporting, and manipulating spatial data; Data cleaning, transformation, and quality control; Spatial data aggregation, merging, and joining

Unit 3: Spatial Data Analysis and Modeling

Spatial autocorrelation and regression analysis; Spatial clustering, hotspot detection, and outlier analysis; Spatial interpolation and prediction modelling

Unit 4: Advanced Spatial Data Analytics and Machine Learning

Deep learning for spatial data analysis; Spatial natural language processing and text analysis; Spatial time series analysis and forecasting; Introduction to spatial graph neural networks

Course Outcomes: Upon the completion of this course, the students will be able

- to apply spatial data analytics to real-world problems, such as urban planning, transportation, and environmental monitoring
- to use programming languages and tools relevant to spatial data analytics, such as Python, ArcPy, and GeoPandas.

References:

1. Haining R. P. (2003). Spatial data analysis: Theory and Practice. Cambridge University Press, Cambridge.
2. Cressie N. (2015). Statistics for Spatial Data. John Wiley & Sons, New Jersey.
3. Fischer M. M., and A. Getis (2009). Handbook of Applied Spatial Analysis: Software Tools, Methods and Applications. Springer Science & Business Media, Berlin
4. Lawhead J. (2013). Learning Geospatial Analysis with Python. Packt Publishing Ltd., Birmingham.
5. Abdishakur H. (2024). Spatial Data Science. Packt Publishing Limited, Birmingham.
6. Martin W. (2023). An Introduction to Spatial Data Analysis. Pelagic Publishing, London.
7. McClain B. P. (2022). Python for Geospatial Data Analysis. O'Reilly Media, Inc., California.
8. Gao J. (2022). Fundamentals of Spatial Analysis and Modelling. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Minor SIS - 21
Course Title	CITIZEN SCIENCE AND SMART SPATIAL TECHNOLOGIES
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to design, implement, and evaluate citizen science projects that leverage smart spatial technologies, promoting community engagement, spatial awareness, and informed decision- making.

Course Contents

Unit 1: Concepts and Principles of Citizen Science and Smart Spatial Technologies

Overview of citizen science and its applications; Introduction to smart spatial technologies; Spatial data collection and crowdsourcing; Ethical considerations in citizen science

Unit 2: Citizen Science Platforms and Tools

Overview of citizen science platforms (e.g., Zooniverse, Citizen Science Alliance); Mobile apps and tools for citizen science (e.g., iNaturalist, OpenStreetMap); Data management and quality control in citizen science; Case studies of successful citizen science projects

Unit 3: Smart Spatial Technologies for Citizen Science

Introduction to IoT sensors and devices for environmental monitoring; Spatial data analytics and visualization for citizen science; Machine learning and AI for citizen science applications; Integration of smart spatial technologies with citizen science platforms

Unit 4: Applications of Citizen Science and Smart Spatial Technologies

Citizen science for Community engagement; Urban planning and smart cities; Communication with diverse audiences; Disaster response and recovery; Project design, evaluation and sustainability

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the concepts and principles of citizen science and its applications in spatial research.
- to learn about smart spatial technologies, including sensors, IoT, and mobile devices.
- to develop skills in communicating citizen science findings and results to diverse audiences.

References:

1. Brunsdon C., and A. Singleton. (2015). Geo-computation: A Practical Primer. SAGE, New Delhi.
2. Hecker S., M. Haklay, A. Bowser, Z. Makuch, J. Vogel, and A. Bonn. (2018). Citizen Science: Innovation in Open Science, Society and Policy. UCL Press, Berlin.
3. Bird S., E. Klein, and E. Loper. (2009). Natural Language Processing with Python: Analyzing Text with the Natural Language Toolkit. O'Reilly Media, Inc., California.
4. Kocaman S., Sameer S., Murat D., and A. Senthil Kumar (2022). Citizen Science and Geospatial Capacity Building. MDPI, Basel.
5. Shi W., M. F. Goodchild, M. Batty, M. Kwa, and A. Zhang, (2021). Urban Informatics. Springer Nature, Berlin.
6. Skarlatidou A., and M. Haklay. (2021). Geographic Citizen Science design: No one left behind. UCL Press, London

Course Code	As per Institutional Policy
Nature of Course	Minor SIS – 22
Course Title	BIG DATA ANALYTICS
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the role of big data analytics in urban infrastructure planning, management, and operations.
- to apply data-driven approaches to optimize urban infrastructure performance, efficiency, and sustainability.

Course Contents

Unit 1: Concepts of Big Data Analytics

Overview of big data and its characteristics; Types of big data (structured, unstructured, semi-structured); Big data analytics ecosystem (Hadoop, Spark, Tableau, MySQL databases); Introduction to big data analytics tools and technologies

Unit 2: Big Data Storage and Processing

Distributed file systems (HDFS, Ceph); NoSQL databases (HBase, Cassandra, MongoDB); Big data processing frameworks (MapReduce, Spark, Flink); Data ingestion and integration techniques

Unit 3: Big Data Analytics Techniques

Data mining and machine learning for big data; Predictive analytics and modelling; Text analytics and sentiment analysis; Big data visualization and communication; Big data and cloud computing (AWS, Azure, Google Cloud), streaming data, Graph analytics

Unit 4: Big Data Analytics Applications

Deep learning for big data analytics; Big data analytics in healthcare and biomedical research; Big data analytics in finance and economics; Big data analytics in marketing and customer behaviour

Course Outcomes: Upon the completion of this course, the students will be able

- to develop expertise in using big data analytics software and tools, such as Hadoop, Spark, and Tableau.
- to apply big data analytics to real- world urban infrastructure challenges, such as traffic congestion, energy consumption, and public health.
- to understand the ethical and privacy considerations in big data analytics for urban infrastructure.

References:

1. Bahga A., and V. Madisetti. (2016). Big Data Science & Analytics: A Hands-On Approach. Vpt., Virginia.
2. Grus, J. (2015). Data Science from Scratch: First Principles with Python. O'Reilly Media, Inc., California.
3. Kleppmann, M. (2017). Designing Data-Intensive Applications: The Big Ideas Behind Reliable, Scalable, and Maintainable Systems. O'Reilly Media, Inc., California.

4. Good fellow I., Y. Bengio, and A. Courville. (2016). Deep learning. MIT Press, Massachusetts.
5. Balusamy B., S. Kadry, and A. Gandomi (2024). Big Data: Concepts, Technology and Architecture. Wiley Publication, New Jersey.
6. Sakr S. (2021). Big Data 2.0 Processing Systems: A Systems Overview. Springer, Berlin.
7. Misra Rajiv, Rana Omer, Muttukrishnan Rajarajan, Bharadwaj Veeravalli, Nishtha Kesswani and Priyanka Mishra (2023). Machine Learning and Big Data Analytics. Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO-21 SPATIAL INFORMATION SYSTEMS FOR URBAN PLANNING
No. of Credits	8 (L: 0; T:0; U: 12)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to equip the knowledge and skills to effectively utilize Spatial Information Systems in urban planning, enhancing their ability to analyse, plan, and make informed decisions.

Course Contents

Using the Spatial Information System, the studio will focus on digital data collection and analysis and plan preparation, stages of implementation, and evaluation for a Master Plan for a city and applications.

Course Outcomes: Upon the completion of this course, the students will be able

- to develop skills in using SIS in data collection, analysis, and visualization in for Master Plan preparation.
- to analyse and evaluate the impact of urban planning decisions using SIS
- to develop collaboration and communication skills to work effectively with stakeholders and communities in planning.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

References:

1. Hecker S., M. Haklay, A. Bowser, Z. Makuch, J. Vogel, and A. Bonn. (2018). Citizen Science: Innovation in Open Science, Society and Policy. UCL Press, Berlin.
2. Cressie N. (2015). Statistics for spatial data. John Wiley & Sons, New Jersey.
3. Geertman S., J. Ferreira, Jr. R. Goodspeed, and J. Stillwell (2015). Planning Support Systems and Smart Cities. Springer, Berlin.
4. Kumar M., R.B. Singh, Anju Singh, Ram Parvesh, and Akash Tiwari (2023). Geographic Information systems in Urban Planning and Management. Springer, Berlin.
5. Shi W., M. F. Goodchild, M. Batty, M. Kwan, and A. Zhang. (2021). Urban Informatics. Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 22
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L: -; T: -; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major SIS – 31
Course Title	ENVIRONMENTAL REGIONS AND SPATIAL DATA ANALYTICS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to equip the knowledge and skills to effectively use spatial data analytics to understand and manage environmental regions, enabling them to make informed decisions for sustainable

Course Contents

Unit 1: Environmental Regions in India

Defining environmental regions and their importance; Types of environmental regions (Eco regions, biomes, watersheds); Overview of spatial data analytics and its role in environmental region analysis

Unit 2: Spatial Data Analytics Fundamentals

Introduction to spatial data (vector, raster, network); Spatial analysis techniques (buffering, overlay, network analysis, spatial autocorrelation, regression); Data visualization and mapping.

Unit 3: Environmental Region Delineation and Analysis

Methods for delineating environmental regions (cluster analysis, GIS mapping); Analysing environmental region characteristics (land cover, climate, soil); Case studies of environmental region analysis (e.g., ecoregion mapping, watershed analysis); Integrating spatial data analytics with other environmental analysis methods

Unit 4: Spatial Data Analytics for Environmental Applications

Using spatial data analytics for environmental monitoring and management; Applications in conservation, natural resource management, and EIA; Working with large spatial datasets and data visualization; Applying spatial data analytics to environmental region analysis.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the limitations and potential biases of spatial data analytics in environmental applications.
- to develop expertise in using spatial data analytics to identify and prioritize areas for conservation, restoration, and sustainable management.
- to develop skills in evaluating and selecting appropriate spatial data analytics tools and methods for environmental applications.

References:

1. P. A. Longley, M. F. Goodchild, D. J. Maguire, and D. W. Rhind. (2015). Geographic Information Science and Systems. John Wiley & Sons, New Jersey.
2. LeSage J., and R. K. Pace (2009). Introduction to Spatial Econometrics. CRC Press, Florida.
3. Brunson C., and Singleton A. (2015). Geo-computation: A Practical Primer. SAGE, New Delhi.
4. Juliana A. and Sara McLafferty (2023). Geospatial Analyses of Environmental Health. Springer, Berlin.
5. Wegmann Martin, Jakob Schwalb-Willmann and Stefan Dech (2020). An Introduction to Spatial Data Analysis. Pelagic Publishing, London.
6. Gemitzi Alexandra, Nikolaos Koutsias and Venkat Lakshmi (2021). Advanced Environmental Monitoring. CRC Press, Florida.

Course Code	As per Institutional Policy
Nature of Course	Major SIS – 32
Course Title	CROWD SOURCED DATA AND SPATIAL ANALYTICS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to equip the knowledge and skills to effectively collect, analyse, and apply crowd sourced data, leveraging the power of collaborative data collection and sharing.

Course Contents

Unit 1: Introduction to Crowd Sourced Data

Understanding Crowd Sourcing: Definition and key concepts, benefits and challenges; Types of Crowd Sourced Data: Structured data (e.g., surveys, forms), unstructured data (e.g., social media, multimedia); Crowd Sourcing Platforms: Overview of popular platforms; Evaluating Crowd Sourced Data: Assessing quality and reliability, ethical considerations (privacy, consent)

Unit 2: Data Aggregation, Fusion, and Integration

Data Aggregation Techniques: Methods for collecting data from multiple sources (e.g., APIs, web scraping), tools, and software for aggregation; Data Fusion Strategies: Combining different data types and sources, addressing conflicts and inconsistencies; Data Integration Challenges: Unifying datasets into a coherent format, handling diverse data structures and formats

Unit 3: Statistical and Spatial Analysis of Crowd Sourced Data

Statistical Analysis Techniques: Descriptive statistics (mean, median, mode, etc.), inferential statistics (regression analysis, hypothesis testing), tools for analysis (R, Python); Spatial Data Analysis: Basics of Geographic Information Systems (GIS), analysing spatial patterns and trends; Data Visualization: Creating effective visualizations (charts, graphs, maps), tools, and best practices, analysing datasets with statistical and spatial methods

Unit 4: Emerging Trends and Technologies

AI-Powered Data Validation: Overview of AI applications in data validation, techniques for ensuring accuracy and consistency; Block chain-Based Data Sharing: Introduction to blockchain technology, applications for secure and transparent data sharing; Other Emerging Technologies: Overview of IoT, big data analytics, and their relevance to crowd sourcing; Future Directions: Predictions and trends in crowd sourcing technologies; Urban planning (leveraging crowd sourced data for city development), Disaster response (using data in emergency management), Market research (Analysing consumer data)

Course Outcomes: Upon the completion of this course, the students will be able

- to develop skills in data aggregation, fusion, and integration from multiple crowd sourced data sources.
- to analyse and evaluate crowd sourced data using statistical and spatial analysis techniques. stay up-to-date with emerging trends and technologies in crowd sourced data, including AI-powered data validation and block chain-based data sharing.

References

1. Sui D., S. Elwood, and M. Goodchild. (2012). Crowdsourcing geographic knowledge: Volunteered Geographic Information (VGI) in Theory and Practice. Springer Science & Business Media, Berlin.
2. Shahbazian E., G. Rogova, and P. Valin (2006). Data fusion for situation monitoring, incident detection, alert and response management. IOS Press, Amsterdam.
3. Wickham H., and G. Golemund. (2016). R for Data science: Import, Tidy, Transform, Visualize, and Model Data. O'Reilly Media, Inc., California.
4. Russell S., and P. Norvig (2016). Artificial intelligence: A Modern Approach. Create space Independent Publishing Platform, South Carolina.
5. Krohn J., G. Beyleveld, and A. Bassens. (2019). Deep Learning illustrated: A Visual, Interactive Guide to Artificial Intelligence. Addison-Wesley Professional, Boston.
6. Haroon D. (2017). Python Machine Learning case studies: Five Case Studies for the Data Scientist. Apress, New York.
7. Hornuf L. and Sonja Mangold (2023). Data Privacy and Crowd Sourcing. Springer, Berlin.
8. Chatterjee S., T. P. Singh, S. Lim, and A. Mukhopadhyay. (2023). Social media and crowdsourcing: Application and Analytics. CRC Press, Florida.
9. Mahalle Parikshit N., Namrata Nishant Wasatkar and Gitanjali R. Shinde. (2024). Data-Centric Artificial Intelligence for Multidisciplinary Applications. CRC Press, Florida.
10. Subramanian C., Asha A George, Abhilash K.A. and Meena Karthikeyan (2020). Blockchain Technology. Universities Press (India) Pvt. Ltd., Hyderabad.

Course Code	As per Institutional Policy
Nature of Course	Minor SIS – 31
Course Title	UNMANNED AERIAL VEHICLE FOR SPATIAL PLANNING
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to effectively utilize UAVs for spatial planning in remote areas, enabling them to collect and analyse spatial data for informed decision-making.

Course Contents

Unit 1: UAV Technology and Spatial Planning

Overview of UAV technology and its applications; Spatial planning in India: challenges and opportunities; Role of UAVs in spatial planning for remote areas

Unit 2: UAV Data Acquisition and Processing

UAV data types (imagery, LiDAR, hyperspectral); Data acquisition methods (flight planning, sensor selection); Data processing techniques (image processing, GIS integration); Land use/land cover mapping and change detection

Unit 3: UAV Applications in Spatial Planning for Remote Areas

Infrastructure planning (roads, bridges, buildings); Disaster management and emergency response; 3D modelling and Terrain Analysis; Ethical considerations in UAV-based spatial planning

Unit 4: Case Studies and Best Practices

UAV-based spatial planning projects in India (case studies); Best practices in UAV data acquisition and processing; Integration of UAV data with other spatial data sources; Indian policies and regulations for UAV operations such as SVAMITVA; Future directions for UAV technology in spatial planning

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the applications and benefits of using UAVs in spatial planning, particularly in remote areas.
- to learn to design and plan UAV- based spatial data collection missions for remote areas.
- to develop expertise in using UAVs for mapping and surveying remote areas, including 3D modelling and terrain analysis.
- to understand the regulatory frameworks and safety

References:

1. Toro F. G., and A. Tsourdos. (2018). UAV or drones for remote sensing applications: Volume 2. MDPI, Basel.
2. Van Oosterom P., S. Zlatanova, and E. Fendel. (2006). Geo-information for disaster management. Springer Science & Business Media, Berlin.
3. Cureton P. (2020). Drone futures: UAS in Landscape and Urban Design. Routledge, London.
4. Mohindru V., Y. Singh, R. Bhatt, and A. K. Gupta. (2021). Unmanned aerial vehicles for internet of things (IoT): Concepts, Techniques, and Applications. John Wiley & Sons, New Jersey.
5. Sabins F. F., Jr, and J. M. Ellis. (2020). Remote sensing: Principles, Interpretation, and Applications, Fourth Edition. Waveland Press, Illinois.

Course Code	As per Institutional Policy
Nature of Course	Minor SIS - 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Qualitative and Quantitative Research and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3IA THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO -3IB SPATIAL INFORMATION SYSTEMS FOR REGIONAL PLANNING
No. of Credits	8 (L: 0; T:2; U: 12)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to effectively utilize spatial information systems in regional planning, enhancing their ability to analyse, plan, and make informed decisions.
- to analyse and evaluate the spatial dimensions of regional planning, including population growth, economic development, and environmental sustainability.

Course Contents

Understanding region- settlement pattern and characteristics, regional diversity, disparities, etc.; Demographic profile, institutional mechanisms and regional development issues; Suitable data types, geospatial techniques for the region; Spatial analysis and modeling techniques. Resource and infrastructure mapping; Spatial clustering and hotspot analysis; Network analysis and routing for regional planning; Spatial interpolation and prediction modeling for regional planning. Spatial Budgeting for the Region; Preparation of final Regional Plan. Case study may be from City-Region/Resource Region/District Plan Preparation/Investment Region.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the importance of spatial data standards, interoperability, and sharing in regional planning.
- to learn to communicate complex spatial information effectively to regional planners, policymakers, and stakeholders.
- to develop skills in designing and implementing GIS-based solutions for regional planning, including needs assessment, system design, and implementation.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD- 32
Course Title	INTERNSHIP (8 WEEKS) To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get exposed the current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Contents

Knowledge on current policies, programmes, and projects in the field of Urban/Metro region in Town Planning Department/ Development Authority/Academics/NGOs.

Course Outcomes: Upon the completion of this course, the students will be able

- to get the current knowledge in the field of urban/metro region planning, projects, etc.

Course Code	As per Institutional Policy
Nature of Course	Major SIS – 41
Course Title	GEOSPATIAL MODELING AND SIMULATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to equip the knowledge and skills to design, develop, and apply geospatial models and simulations to understand and analyse complex spatial phenomena.

Course Contents

Unit 1: Introduction to Geospatial Modelling and Simulation

Overview of geospatial modelling and simulation; Types of geospatial models (descriptive, predictive, prescriptive); Simulation techniques (agent-based, cellular automata, spatial interaction)

Unit 2: Geospatial Data and Spatial Analysis

Geospatial data sources (vector, raster, network); Spatial analysis techniques (buffering, overlay, network analysis); Data visualization and mapping; Cellular automata and spatial dynamics

Unit 3: Geospatial Modelling Techniques

Spatial regression and econometrics; Spatial autocorrelation and interpolation; Spatial interaction and gravity models; Scenario analysis and decision support systems

Unit 4: Open-Source Satellite Data for Spatial Modeling

Landsat, Sentinel, LISS, Cartosat, MODIS, NOAA, etc; Stereo satellite data: Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER), Digital Globe, ISRO's Cartosat DEM, etc.; Elevation Model, Digital Terrain Model; Agent-based modelling and 3D simulation such Triangular Irregular Network, Digital

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the applications of geospatial modelling and simulation in various fields (e.g., urban planning, environmental management, emergency response).
- to learn to work with geospatial data formats and structures (e.g., raster, vector, 3D models)
- to develop skills in integrating geospatial models with other data sources (e.g., sensor data, social media).

References:

1. De Smith M. J., M. F. Goodchild, and P. Longley. (2007). Geospatial analysis: A Comprehensive Guide to Principles, Techniques and Software Tools. Troubador Publishing Ltd, Harborough.
2. Fischer M. M., and P. Nijkamp. (2012). Geographic information systems, spatial modeling and policy evaluation. Springer Science & Business Media, Berlin.
3. Li D., S. Wang, and Li D. (2016). Spatial data mining: Theory and Application. Springer, Berlin.
4. Silveira P., and T. P. Dentinho. (2024). Spatial Interaction Models with Land Use. Springer, Berlin.
5. Chi G., and J. Zhu (2019). Spatial regression models for the Social Sciences. SAGE Publications, New Delhi.
6. Jiang B. and Xiaobai Yao. (2022). Geospatial Analysis and Modelling of Urban Structure and Dynamics. Springer, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Major SIS - 42
Course Title	SPATIAL INFORMATION GOVERNANCE POLICY AND LEGISLATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop and implement effective spatial information governance policies and legislation, balancing competing interests and promoting sustainable development. This goes into details of the information regulations, frame, security, and legalisations.

Course Contents

Unit 1: Spatial Governance in India

Overview of spatial governance in India; National and state-level policies and initiatives; Regulatory Authorities/ Institutions: Various Ministries such as Ministry of Housing and Urban Affairs; State-level urban development authorities; Town and Country Planning Organizations (TCPOs); Local self-government institutions (municipalities, panchayats)

Unit 2: Process of making Policy

Problem identification: Recognizing a problem or issue that requires attention; Agenda setting: Deciding which problems to address and prioritizing them; Policy formulation: Developing potential solutions and evaluating their feasibility; Policy adoption: Selecting and approving a policy option; Policy implementation: Putting the policy into effect; Policy evaluation: Assessing the policy's effectiveness and making adjustments as needed

Unit 3: Spatial Data Management and Sharing

National Spatial Data Infrastructure (NSDI); Data sharing and collaboration frameworks; Geospatial data policies and standards

Unit 4: Urban and Rural Planning Legislation

Urban planning legislation such as The Constitution (Seventy-fourth Amendment) Act; Urban Land (Ceiling and Regulation) Act, 1976; National Land Utilisation Policy, Land Acquisition, Rehabilitation and Resettlement Act, 2013; Real Estate (Regulation and Development) Act, 2016 (RERA); Benami Transactions (Prohibition) Act, 1988, The Slum Areas (Improvement and Clearance) Act, 1956, etc.; Rural planning laws; Policy and agenda, implementation and monitoring of policies; The Constitution (Seventy-third Amendment) Act, 1992), Environmental impact assessment and clearance; Successful spatial governance initiatives in India.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the role of spatial governance in shaping urban and regional development.
- to understand the impact of spatial governance on social, economic, and environmental outcomes.
- to develop expertise in policy instruments, such as zoning, land use regulations, and spatial plans.

References:

1. Fischer M. M., and P. Nijkamp. (2012). Geographic information systems, spatial modeling and policy evaluation. Springer Science & Business Media, Berlin.
2. Vidyarthi S., S. Mathur, and S. Agrawal. (2017). Understanding India's new approach to spatial planning and development: A Salient Shift? Oxford University Press, Oxford.
3. Nedovic-Budic Z., J. Cromptoets, and Y. Georgiadou. (2011). Spatial data infrastructures in context: North and South. CRC Press, Florida.
4. Smitha K. C. (2016). Entrepreneurial urbanism in India: The Politics of Spatial Restructuring and Local Contestation. Springer, Berlin.
5. Sarda N., P. Acharya, and S. Sen. (2018). Geospatial Infrastructure, Applications and Technologies: India case studies. Springer, Berlin.
6. Krishna Bal, Shubhra Kingdang, Sanjay Malaviya and Prof. P. Misra (2010). National Spatial Data Infrastructure in India: Through the Years. IGI Global Publishing, New York.
7. Pomfret Komar D. (2024). Geospatial Law, Policy and Ethics. Routledge, London.
8. Saroukhanian Talin (2022). The Fundamentals of the Policy Process. Cognella, Inc, California.

Course Code	As per Institutional Policy
Nature of Course	Minor SIS -41
Course Title	NATURAL RESOURCE MANAGEMENT SYSTEMS
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to equip the knowledge and skills to design, implement, and manage effective natural resource management systems, balancing human needs with environmental sustainability.

Course Contents

Unit 1: Introduction to Natural Resource Management

Basic Concepts: Definition and scope of NRM (understanding core principles and goals); Historical Evolution: The development of NRM practices over time; Sustainability Principles: Key principles guiding effective NRM; Case Studies: Examination of successful and failed NRM systems (real-world examples and outcomes)

Unit 2: Analysing and Evaluating NRM Systems

Evaluation Methods: Techniques such as SWOT analysis and impact assessment (tools for system evaluation); Effectiveness Metrics: Indicators for assessing NRM performance (measuring success and impact); Case Study Analysis: In-depth analysis of various NRM systems (understanding different evaluation outcomes)

Unit 3: Designing and Implementing Effective NRM Systems

Design Frameworks: Principles and models for system design (structuring effective NRM systems); Integration Factors: Balancing ecological, social, and economic; Design Models: Frameworks for creating NRM systems (guiding design processes); Implementation Strategies: Best practices for deploying NRM systems (strategies for effective implementation); Resource Allocation: Managing resources and budgets (optimizing resource use); Monitoring Techniques: Methods for tracking system performance (ensuring effectiveness)

Unit 4: Managing Specific Natural Resources

Forests: Management practices and strategies for sustainable forestry (forest management techniques); Land: Management practices and strategies for sustainable land development; Water: Challenges and solutions in water resource management (addressing water management issues); Soil: Techniques for soil conservation and management (soil management practices); Wildlife: Approaches for wildlife conservation and management (wildlife management strategies)

Course Outcomes: Upon the completion of this course, the students will be able

- to learn to analyse and evaluate NRM systems, including their strengths, weaknesses, and impacts.
- to develop skills in designing and implementing effective NRM systems, considering ecological, social, and economic factors.
- to develop expertise in managing specific natural resources, such as forests, water, soil, and wildlife.

References:

1. Harrison A.J. (2017). Economics and Land use planning. Routledge, London.
2. Florida C.F. (2013). Community-Based natural resource management in Southern Africa: An Introduction. Author House, Bloomington.
3. Bodin Ö. and C. Prell (2011). Social networks and natural resource management: Uncovering the Social Fabric of Environmental Governance. Cambridge University Press, Cambridge.
4. Braun A. (2013). Managing natural resources for sustainable livelihoods: Uniting Science and Participation. Routledge, London.
5. Thakur B., R.R. Thakur, S. Chattopadhyay, and R.K. Abhay (2022). Resource management, sustainable development and governance: Indian and International Perspectives. Springer Nature, Berlin.
6. Woodmansee Robert G., John C. Moore, Dennis S. Ojima and Laurie Richards. (2021). Natural Resource Management Re-imagined: Using the Systems Ecology Paradigm. Cambridge University Press, New Delhi.
7. Jhariya M. K., R.S. Meena, A. Banerjee, and S.N. Meena (2021). Natural resources conservation and Advances for Sustainability. Elsevier, Amsterdam.
8. Saikia Debajit and Dr. Pradip Kumar Baruah (2023). Natural Resource Management. Mahaveer Publications, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO – 4 THESIS
No. of Credits	12 (L: -; T:-; U: -
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).
- to undertake detailed exploration of the topic (by way of surveys and studies).
- to identify issues and concerns those emerge out of the study and suggest recommendations.

Course Contents

Guided research by a student under the supervision of an individual/group of faculty from formulation to submission of the research.

Course Outcomes: Upon the completion of this course, the students will be able

- to enhance ability to critically analyse complex housing issues and data, developing a keen understanding of underlying problems and trends.
- to advance research skills, including designing studies, collecting and analysing data, and synthesizing information from multiple sources.
- to improve problem-solving abilities, with a focus on developing practical and innovative solutions to housing challenges.
- to increased attention to detail in conducting research, analysing data, and presenting findings, ensuring accuracy and thoroughness.
- to experience in managing a research project from inception to completion, including planning, executing, and reviewing progress.

Model Curriculum for 3.1.10.: Two-Year M. Plan/ M. Tech (Spatial Governance and Public Policy)

Programme Objectives

- ‘Spatial Governance and Public Policy’ programme will impart spatial planning related governance and policy making to address the vacuum that exist in urban and regional development and allied subjects, especially in the field of policy making process; the tools that can be used; work out policy negotiations; participative governance, minimize conflicts; etc.
- It will help the students to develop a new breed of spatial policy experts. The programme has a tint towards spatial planning to cater existing and future cities and towns across India, in addition to Districts and Villages.

Programme Outcomes

- The students will have the knowledge about the Spatial Governance and Public Policy at all levels (from Village to State and Country), the policy making, process, institutional implementation mechanism and evaluation.

• **OUTLINE SCHEME**

Second Semester						
Course Code	Nature of the Course	Title of Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SGPP-21)	Fundamentals of Public Policy	2	1	0	3
	Major (SGPP-22)	Land Policy and Governance	2	1	0	3
	Minor (SGPP-21)	Indian Public Administration	1	1	0	2
	Minor (SGPP-22)	Urban and Regional – Theories and Policies	1	1	0	2
	Value Added Course (VAD-21)	To be chosen from the common basket	1	1	0	2
	Skill Development SD - 21	Planning Studio – 21A Quantitative Methods	0	0	4	2
		Planning Studio – 21B Neighbourhood to Master Plan - Policy Making Process	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				
Total Credits						20

Third Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SGPP-31)	Mega Projects, Policy Formulation and Evaluation	2	1	0	3
	Major (SGPP-32)	Multi-Spatial Governance - Territory and Power	2	1	0	3
	Minor (SGPP-31)	Institutional Governance and Laws	1	1	0	2
	Minor (SGPP-32)	Research Methodology	1	1	0	2
	Skill Development SD - 31	Planning Studio - 31A Thesis Preliminaries	0	2	0	2
		Planning Studio – 31B Spatial Governance	0	0	4	2
		Planning Studio – 31C Capstone Project on Spatial Public Policy (Regional)	0	1	10	6
	Skill Development SD – 32	Internship (8 weeks) To be undertaken by the students during summer vacations after 2 nd semester and credits will be included in the 3 rd semester				Audit
Total Credits						20

Fourth Semester						
Course Code	Nature of the Course	Title of the Course	Credits			Total Credits
			L	T	U	
As per Institutional Policy	Major (SGPP-41)	Climate Policy Evaluation and Impacts	2	1	0	3
	Major (SGPP-42)	Economics and Finance of Public Policies	2	1	0	3
	Minor (SGPP-41)	Emerging Spatial Technologies and Governance	1	1	0	2
	Skill Development SD - 41	Planning Studio Thesis	-	-	-	12
Total Credits						20

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Total Credits: 20 Credits of Integrated First Semester + 60 Credits = 80 Credits

Course Code	As per Institutional Policy
Nature of Course	Major SGPP - 21
Course Title	FUNDAMENTALS OF PUBLIC POLICY
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to have the knowledge of public policy fundamentals on policy design making, actors and institutions, theories and approaches to public policy, instruments of public policy, process making and evaluation.

Course Contents

Unit 1: Introduction to Public Policy

What is public policy? Meaning and importance of Public Policy Basic Concepts: Government, Politics and Policy Analysis; Principles of Public Policy: Moral coherent, Ethics, Economics, and Politics; Categorizing of Public Policy: Facilitative, Discretionary Policy, Distributive, Redistributive, Regulatory; Policy Arenas: Scope of Public Policy, Lags in Public Policy.

Unit 2: Policy Process

Constitutional Framework: The Union and its territories, citizenship, fundamental rights, Directive Principles of State Policy, Fundamental Duties: System of Government and Governance, Parliament and Federal system; Center-State Relations; Inter-state relations. Relationship between Center, State, Judiciary and Civil Society; Non-Constitutional bodies and their importance in policy making; Policy cycle; Policy formulation design and tools.

Unit 3: Policy Decision Making & Types of Policy

Rationality in policy decision making; Altruism, Bounded Rationality; Rational Choice in public policy, Public Choice; Theories of public policy; Social Welfare Policy, Economic Policy; Policy Makers; Public Policy as outcomes; Policy Analysts and their role; Policy Process: Agenda Setting, Policy enactment, policy implementation, and Evaluation.

Unit 4: Policy Constraints in Policy Making

Social Constraints in public policy; Economic Constraints; Political constraints, Institutional constraints in public Policy; Policy Divergence and Convergence, External International (environment) policy constraints; Policy Implementation Constraints.

Course Outcomes: Upon the completion of this course, the students will be able

- to know the fundamentals/concepts of public policy and the various stages of policy making, theories, and policy evaluation briefs.

References:

1. Balasubramaniam R. (2015). I, the Citizen, Grassroots Research and Advocacy Movement. Grassroots Research and Advocacy Publisher, New Delhi.
2. Chakraborty Rajesh and Sanyal Kaushik (2016). Public Policy in India. Oxford University Press, New Delhi.
3. Chikarmane Gautam (2018). 70 policies that shaped India. Observer Research Foundation, New Delhi.
4. Kingdon W John (1997). Agendas, Alternatives, and Public Policies. Longman Classic Edition. Pearson, Noida.

5. Maira Arun (2019). Transforming Systems. Rupa Publications, New Delhi.
6. Sanyal Sanjeev (2013). Land of the seven rivers. Penguin Books, Gurugram.
7. Shafir Eldar (2012). The Behavioral Foundations of Public Policy. Princeton University Press, New Jersey.
8. Stone Deborah (1988). Policy Paradox: The art of political decision making. W.W. Norton and Company, New York.
9. Thomas A Birkland (2001). An introduction the Policy Process: Theories, Concepts and Models of Public Policy Making. Routledge, London.
10. Kelkar Vijay and Shah Ajay. (2022). In service of the republic. Penguin Books, Gurugram.
11. Raj K. (2021). Public Policy in India. Rawat Publications, New Delhi.
12. Chattopadhyay Soumyadip and Apurba Kumar Chattopadhyay (2021). Policy Making: Challenges and Concerns. Gyan Pod Publisher, New Delhi.
13. Gerven Minna van, Christine Rothmayr Allison and Klaus Schubert (2024). Encyclopedia of Public Policy. Springer Nature, Berlin.

Course Code	As per Institutional Policy
Nature of Course	Major SGPP – 22
Course Title	LAND POLICY AND GOVERNANCE
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the problems associated with land, actors and influencers, along with the process of formulating the land policy at city and its region.
- to understand the process how the implementation of a land policy takes place in a city and its region.

Course Contents

Unit 1: Introduction to Land Policy

Land Rights: Public Domain, Private Domain and Trust Domain; Phases of Land reforms: Land reforms (1950-1972), Land Development (1972-1985), Land, Water and Soil Conservation (1985-1995), Land Revenue Administration and land records (post 1995), Digitalization phase (post 2014); Role of National Land Use and Conservation Board.

Unit 2: Typology of Land and Policy Making Process

Types of Land and their policies (ex: Communal and Forest Land; Agricultural land, Urban Land, water bodies, etc); Urban Land, Land Acquisition, Compensation, Deliberations and policy Decision making process; Time and outcome: public land; Rationality and Irrationality in public land policy decisions.

Unit 3: Public Land, Acquisition, Assembly and Disposal

Land Rights, Public Land, Common Land, Religious Institutional Land, and Private Land; Land Acquisition, Compensation and Fair Price; Land Acquisition Policies by Government/Public Enterprises and compensation variations; Land possession, dispersion and use assignment: Process and delivery to final user; Special Areas: Special Economic Zones, Port, Airport and Railways, Public Undertaking Areas, and other public lands; Land Policies and Land Pricing Policies on Land Management in the Urban, Metropolitan and Village Areas; State Variations in Governance.

Unit 4: Private Land Acquisition, Assembly and Disposal

Private Land Rights, Size and Typology of Land, Land Assembly Policies: Large Scale Assembly, Town Planning Scheme and ownership, Institutional governance post development, Pricing Policy, Land Development Policies and Regulations, Land Disposal Policies vis-à-vis Government Land Policies. Commercial Land Policies, Industrial Land Policies: Land Policy within Industrial Policy: Housing and infrastructure for workers; Disinvestment policies for industrial land: variations in States.

Course Outcomes: Upon the completion of this course, the students will be able

- to become familiar with the land policy making and various actors associated with that.
- to know how the land policies are implemented at various levels and across sectors in a city and its region.

References:

1. Rao Jyoti (2018). Functioning of land: Analyzing Compulsory Acquisition Cases from Scotland. Springer, Verlag.
2. Row Sanjiva TV (2010). The Land Acquisition Act, 1894. Atlantic Publishers and Distributors, New Delhi.
3. Sathe Dhanmanjiri (2017). The Political Economy of Land Acquisition in India: How a Village Sops Being One. Springer, Verlag.
4. Stone Deborah (2012). Policy Paradox: The Art of Political Decision Making. W.W. Norton & Company, New York.
5. Maiti Ramkrishna and Sumanta Prakash Shee (2022). Land Acquisition, Industrialization and Livelihoods: A case study on JSW Bengal Steel Plant. Springer Nature, Switzerland AG.
6. Indian Railways Institute of Civil Engineering (2021). Handbook on Land Management. Kiran Printers, Pune.
7. Nayak Pradeep (2020). Land Reforms to Land Titling: Emerging Paradigms of Land Governance in India. SAGE Publications Pvt. Ltd., New York.

Course Code	As per Institutional Policy
Nature of Course	Minor SGPP - 21
Course Title	INDIAN PUBLIC ADMINISTRATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to know the operation mechanism of public administration system i.e. Federal Structure - Center, State, Concurrent related to spatial governance and policy guidance; Levels of Government - Central Ministries, State Departments, District, Block and Gram levels; Convergence and Divergence in public administration; Approvals, accountability, and citizen interface of administration and allied government institutions (public autonomous); and, Identification of beneficiaries at all levels for public policy.

Course Contents

Unit 1: Evolution of in Indian Administration

Indus Valley, Gangetic Valley Civilizations, Maurya: Chandragupta's Administration, Chanakya's Administration and Chanakya Neeti; Ashoka's and post Ashoka's period administration; Gupta period: Urban and Rural Local Self-Government and its administration: Gramakutunis and Uparikas; Chola's Administration and Land Revenue System, Irrigation Administration; Mughal Empire's Administration: Akbar's Local Self-Governance System: Mansabdars, Talukdars, Parganas, Zamindars and Nizams.

Unit 2: British Indian Administration

Prior to 1858: Pitt's India Act: 1784: Six Commissioners including Exchequer and Secretary of State for India, Amending Act of 1786; Secretaries to Government and changes in 1787-1808; Financial and Colonial Departments; Administration of Revenue: Imperial Grant of the Diwani; Formation of Board or Council, District Collector and Administration; Charter Act of 1853: Civil and Military, Commissionerate. Post- 1858 till 1947: Provinces and Administration, Zamindwari System of Lord Cornwallis, Thomas Munro's Ryotwari Revenue System and its transformation: Holt Mackenzie and Robert Merttins Bird: Fixation of Average rents for different quality of lands; Difference between Administration and Development during the British Rule; Government of India Act of 1935 and its implication in Administration.

Unit 3: Post Independence Indian Administration

Indian Constitution Act 1950, Major changes in the Constitution related to Administration; Constitution Amendment Act of 1976 (formation of State); Constitution Amendment Act of 1993-1994 related to Urban and Rural Administration; Decentralization: Function, Finance and Functionaries; Administrative System: Center, State, District, Urban and Gram Panchayats, Approvals, accountability, and citizen interface of administration and allied government institutions (public autonomous); and Identification of beneficiaries at all levels for public policy.

Unit 4: Administration at Various Levels and Reforms

Administration in India: Center: Ministries and Departments, Autonomous Organizations, Public Sector Undertakings; State Level: Departments, Autonomous Organizations, State Public Sector Undertakings; District Level: Collectorate, Departments, under the influence of the Collector: Functions, Finances and Functionaries; Administration and Citizen interface.

Administrative Reforms: Through political changes, organizational rigidities, legal system, and changes in attitude, Administrative Reforms Committee: Its mandates and recommendations.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the whole gamut of government administration in India i.e. the interface between various scales (Central to Gram Panchayat); sector variations; Divergence and Convergence, identification of the citizens and targeted policies.

References:

1. Bhattacharya Mohit (2018). New Horizons of Public Administration. Paperback. Jawahar Publishers and Distributors, New Delhi.
2. Prasad Ravindra D, V Prasad Pardhasaradhi, and P Satyarnarayana (2011). Administrative Thinkers. 3rd Edition. Sterling Publishers, Delhi.
3. Raghunandan T.R (2019). Everything you Ever Wanted to Know about Bureaucracy but Were Afraid to Ask. Paper Back-1. Penguin India, Gurugram.
4. Baiju K (2023). My 'Encounters' with Spatial Planning. Our Space, Thiruvananthapuram.
5. Matani Lohit and UPSC Civil Services (2023). Public Administration and Public Policy. Vol. I. 2nd Edition. Paper Back. Oak Bridge Publishing Pvt. Ltd., Delhi.
6. Muralidharan Karthik (2024). Accelerating India's Development: A State-Led Roadmap for Effective Governance. Penguin Viking, Delhi.
7. Navneethan S (2023). Development Administration in Tamil Nadu. Tamizhi Books, Chennai.

Course Code	As per Institutional Policy
Nature of Course	Minor SGPP - 22
Course Title	URBAN AND REGIONAL – THEORIES AND POLICIES
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to attain basic knowledge about various contemporary theories in the field of urbanization and their base to the urban policy making in various countries including India.
- to appreciate the role of globalization, localization and SDGs in urban policy making across developed, developing south.

Course Contents

Unit 1: Modern Theories of Urban and Regional Planning

Industrial City; Garden City; Economic Concentration and Sectoral Models (Communication Theories; Community Development: Right to the City, Ladder of Participation, Bid Rent Theory (Alonso); Creative/Innovative Cities; Cultural Cities; Healthy Cities; Smart Cities; Digital Cities, and other concepts; Neo Geographic Theories of Regional Development; Neo Ecological (Chicago Theories), Global Cities, Networked Cities, and Contributions of Friedman, Saskia Sassen (Brutality and Complex cities), Lefebvre, Massey, Soja, David Harvey, and others.

Unit 2: Nature of Urban and Regional Policies

Nature of Indian urban and regional problems; Planning as a public domain; Policy process, Complexities in Planning and Policies; limitations in public and private Sector; Strategic urban and regional policy (Urban, Metro Region, and Regional planning; Overview of policy analysis: scope, significance and contextual perspectives, public policy delivery agencies and Implementers; Gaps and problems.

Unit 3: Indian Urban and Regional Policy

Role of the Centre and State Governments in Urban and Regional Policy; Implied Spatial Policies since Independence, Rural-Urban Relationship Committee (1964), Programmes Vs. Policies: from the First Five Year Plans to recent Five Year Plans; National Urban Commission (1988), National Urban Policy Framework, 2018 Urban Housing and Habitat Policy, Urban Rental Housing Policy, Rural Housing Policy, Street Vendors, Urban Transport Policy, ToD Policy; State Urban Strategies and Policies: Policy Making Process, Implementation and Evaluation. Regional Planning Policies: Central Level: Western Ghats, National Capital Region, Coastal Region, Hill Area Development, and Agro-Climatic Regions.

Unit 4: Policy Implementation, Tools and Evaluation

Center's Urban and Regional Policies: Role of the State, Directly from Center, Collaborative Policy Implementation: Center-State-Local Self Government, Policy Space, Norms and Standards through Policies, Judicial Decisions (Policies) and Urban and Regional Planning. Other policies such as Industrial Policies, Environmental Policies, Road Policies: Center-State and Local Self-Governments role in implementation; Policy Tools at various levels for implementation: Role of the Local Self Government, State, Center and Judiciary, policy evaluation Indicators; policy scenarios formulation; policy evaluation: role, process and criteria; and Impact.

Course Outcomes: Upon the completion of this course, the students will be able

- to analyze the nature, scale and spatial planning of various cities and their regions in India and abroad.
- to demonstrate the influence of local and global factors in various policy arena in India.

References:

1. De Witt Joop and I.S.A. Baud (2008). New forms of urban governance in India: shifts, models, networks and contestations. Sage, New Delhi.
2. Friedmann John (1987). Planning in the Public Domain: From Knowledge to Action. Princeton University Press, New Jersey.
3. Friedmann John (2011). Insurgencies: Essays in Planning Theory. Routledge, London and New York.
4. Mathur O.P. (1993). Responding to India's Urban Challenge: A Research Agenda for the 1990s. National Institute of Public Finance and Policy, New Delhi.
5. Ministry of Housing and Urban Affairs (2018). National Urban Policy Framework. Government of India, New Delhi.
6. Ministry of Urban Development (1988). National Commission on Urbanisation. Government of India, New Delhi.
7. Mohan, R. and S. Dasgupta (2004). Urban Development in India in the Twenty First Century: Policies for Accelerating Urban Growth. Working Paper No. 231. Stanford University: Centre for International Development.
8. Sassen Saskia (2014). Expulsions: Brutality and Complexity in the Global Economy. Harvard University Press, Harvard.
9. Ministry of Housing and Urban Affairs (2018). National Urban Policy Framework. Government of India.
10. Ministry of Housing and Urban Affairs. Transit Oriented Policy. Government of India.
11. Lauria Mickey and Carissa Schively Slotterback (2020). Learning from Arnstein's Ladder: From Citizen Participation to Public Engagement. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	VAD – 21
Course Title	To be selected from the list given at the end. Institution has an option to select one of them.
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to add value to the present major and minor courses.

Course Contents

To be selected from the basket given at the end.

Course Outcomes: Upon the completion of this course, the students will be able

- to get additional knowledge.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO – 2A QUANTITATIVE METHODS
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the statistical tools for the analysis of current conditions and future projections and for modelling the future scenario.

Course Contents

Unit 1: Introduction to Statistics, Organising Surveys & Data Collections

Statistics, Functions of Statistics, Applications and Limitations of Statistics; Organising a statistical survey: Techniques of data collection, choice of frame, Degree of accuracy desired, Design of forms, field investigators; collection of Data: Primary and Secondary Data, Drafting the questionnaire, Sources of Secondary data, Editing primary and secondary data.; Census of India tables and its usage in planning; CSO/NSSO/NFHS data and its usage in planning; linking Census of India to NSSO tables.

Unit 2: Sampling, Sample Designs and Classification & Tabulation of Data

Census and Sample Method; Theoretical basis of sampling, Methods of sampling, Size of sample; Classification and Tabulation of data: Meaning and classification of objectives, types of classification, Frequency Distribution; Tabulation of Data: Difference between classification and tabulation, types of tables; soft wares for tabulation.

Unit 3: Measures of Central Value, Dispersion & Skewness, Moments, Kurtosis

Types of Averages: Arithmetic Mean, Median, Mode, Geometric Mean, Harmonic Mean, General limitations of average. Measures of Dispersion: Measuring Variation: Range, Quartile Deviation, Mean Deviation, Standard Deviation, Coefficient of Variations, Chebyshev's theorem, Lorenz curve. Difference between dispersion and skewness, measures of skewness, Moments, Sheppard's correction; Kurtosis.

Unit 4: Correlations and Regressions

Correlation and Causation; types of correlations, Partial and multiple correlation, scattered diagram method, Graphic method; Karl Pearson's coefficient of correlation; Probable Error; Coefficient of Determination, Rank Correlation, Concurrent Deviation method. Regression: Regression lines, Regression Equation; Regression equations in case of correlation table, Standard Error of Estimate. Time Series: Measurement of Trend, Seasonal, cyclical and irregular variations; Introduction to Interpolation and Extrapolation.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate practical skills in analysing and visualization of data.
- to carry out projections and scenario building.

References:

1. Gupta S. P. (2024). Statistical Methods. Sultan and Chand, Delhi.
2. E. Reid and Keunhyunk Park. (2020). Basic Quantitative Research Methods for Urban Planners. Routledge, London.
3. Anusha Illukkumbura (2020). Introduction to Regression Analysis. Amazon Digital Services LLP.
4. Lohr Sharon L. (2022). Sampling Design and Analysis. Routledge, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 21
Course Title	PLANNING STUDIO – 2B NEIGHBOURHOOD TO MASTER PLAN – POLICY MAKING PROCESS
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the Policy Making Process at Ward, Neighborhood and Negotiation Skills with various policy influencers/stakeholders/gate keepers and come out with Ward level/Neighborhood level Policy for specific urban sector. Understand the process of Master Plan from grass root level to city level, community planning and leadership skills, use of tools such as FGD, stakeholders and influence of lobbyists, policy tools, and come out with policy convergence for Master Plan for a city/town.

Course Contents

This studio will impart the policy making at the Ward level to Neighbourhood level, though the tools of interviews, stakeholders' meetings, negotiating skills, collaborations for policy development in selected important sector for a selected area of a city. After completing this short exercise, students will be replicating these exercises including FGD, city level gate keepers of city policy, influencers/lobbyists and administrators. All these exercises will culminate into a Master Plan giving a broad policy, vision, mission and policy strategies for a city.

Course Outcomes: Upon the completion of this course, the students will be able

- to understand the policy making process from grassroots level to neighborhood and City level. They will be able to make the city plan using the various communication tools, and policy tools.
- to examine the city/ settlement situations and analyze the making policies and programmes on urban development.
- to conduct stakeholders' groups, negotiation skills, identify leaders and gate keepers and think tanks at local level and how to generate policies which are accepted by all.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

<i>Course Code</i>	<i>As per Institutional Policy</i>
<i>Nature of Course</i>	<i>Skill Development SD – 22</i>
<i>Course Title</i>	<i>INTERNSHIP (8 WEEKS)</i> <i>To be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester</i>
<i>No. of Credits</i>	<i>AUDIT (L:-; T:-; U:-)</i>
<i>Internal Assessment</i>	<i>As per Institutional Policy</i>
<i>End Semester Assessment</i>	<i>As per Institutional Policy</i>

Course Objectives: The student will be enabled

- to undertake internship at Local Self-Government, NGOs, Town Planning Office/Development Authority to understand the complexities of policy making and implementation.

Course Contents

A student will be expected to get himself/herself attached to a LSG, Development Authority, Town Planning office, or NGOs or to an Academic institution that are involved in policy making and understand the policy making process at each level. They will learn the possibilities and constraints at all levels for policy making and implementation for a City Master Plan.

Course Outcomes: Upon the completion of this course, the students will be able

- to get practical exposure to various types of planning work being done in the organization.
- to get placement opportunities in the organizations where they undergo internship

Course Code	As per Institutional Policy
Nature of Course	Major SGPP - 31
Course Title	MEGA PROJECTS, POLICY FORMULATION AND EVALUATION
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to familiarize with importance of and formulation of mega programmes and projects.
- to familiarize with the politics associated with programmes and projects of state, national and international importance in urban and regional planning, along with the planning and problems associated with them.
- to understand the policy evaluation.

Course Objectives

Unit 1: Introduction: Mega Programmes and Projects

Mega Programme interface with Mega project: definition, concepts, Sources of projects, and their formulation; Classification of mega projects: investment based, activity based, location based; Relevance of Mega Projects in a State, Region and Urban Planning; Current status of Mega projects in India; Laws and Theories behind Mega Projects; Political symbolism, social conflict theory; Types and nature of mega projects: transportation based, industrial, commercial, residential, energy, others, Trans-national mega projects.

Unit 2: Global, National, State Projects

Global Projects and its impact on Indian cities and Regions: Global Events in India and its impact; Transnational Projects: Dimensions, Size, Investments and their Impact; Related Concepts: SEZ, Free Trade Zones, Mega projects and urban development and regional development; Cycles in mega project development: Trendsetters, promoters, surge and declines, waves of mega project innovations; Bilbao effect; Impacts of mega projects and pitfalls; From Mega structures to Megalopolis; City transformations through mega projects; Guidelines for mega projects at national level; Critical Infrastructure requirements for mega projects, theoretical ideologies towards mega project infrastructure provisions.

Unit 3: Policy Divergence, Convergence and Digital Convergence

Policy Divergence and Convergence: Centre, State, Districts, Sectoral Convergence and Divergence, Scale and Investment Convergence; Finance agreements between Centre and State, Land Convergence and Commitments; Political Convergence in Mega Projects; Mega projects as instruments of urban planning and development; Mega projects as instrument of social and environmental changes; Environmental and land acquisition issues in mega projects; Mega project development policies for multiplexes and hotels, Mega industrial parks, Agriculture mega projects, Mega housing projects, Super mega projects, Special economic zone, Dry ports and free ports, Theme parks; Private and community sector participation in mega projects, challenges and potentials of mega projects, project planning & development in urban & regional context.

Unit 4: Policy Evaluation and Impact

Finance for mega projects: Global/Bilateral/National Funding: Conditionality, Institutional Arrangements, Implementation, Evaluation and Impact; Policy Targeting: People Groups, Space, Special Social and Environmental Targets, Indicators for Evaluation; Private Sector

participation in mega projects, Mega projects and environment implications, Mega projects and displacements issues, Land Acquisition, Rehabilitation and Resettlement Act, 2013; National/international Case studies of mega projects; Dams, Airports, Ports, SEZ, Amusement parks, Commercial developments, problems, prospects and policy reforms for developmental displacements in India, rehabilitation measures post displacement. Case studies of displacement and rehabilitation (Sardar Sarovar Dam, Statue of Unity, Hangzhou, China).

Course Outcomes: Upon the completion of this course, the students will be able

- to demonstrate knowledge about the concept, classification and status of the mega programmes and projects across various sectors within a city region.
- to show understanding about the politics and how theories of mega programmes and projects are formulated, implemented and evaluated.
- to express familiarity with guidelines of mega projects developed by the center and state government for different types of mega projects.

References:

1. Altshuler Alan A. and David Luberoff (2003). Mega-projects: The changing Politics of Urban Public Investment. Washington, D.C. Brookings Institution Press, Lincoln Institute of Land Policy, Cambridge.
2. Flyvbjerg Bent, Nils Bruzelius and Werner Rothengatter. (2003). Megaprojects and risk: an anatomy of ambition. Cambridge University Press, New York.
3. Ganesan S. (2001). Infrastructure Development and Financing. Kanishka Publishing, New Delhi.
4. Hugo P. (2008). Decision making on Mega projects, cost/benefit analysis, planning and innovation. Elgar publication, London.
5. Kris O. (2001). Globalization and urban change, capital, culture and Asia Pacific Megaprojects. Oxford University Press, Oxford.
6. Kundu A. (2000). Inequality Mobility and Urbanization: China & India. Manak Publications Pvt. Ltd., New Delhi.
7. Moss Timothy (2000). Marvin Urban Infrastructure in Transition: Networks, Buildings, Plans. Earthscan Publisher, London.
8. Singh K. (1997). Integrated Urban Infrastructure Development in Asia. Oxford & IBH, New Delhi.
9. Varrell Aurelie and Loraine Kenndy (2011). Mega-Events and Megaprojects. Report: Chance 2 Sustain. EADI, Bonn. Switzerland.
10. Verma S.P. (2004). Infrastructure in India's Development: Power, Transport and Communication. Institute of Public Administration, New Delhi.
11. Drouin Nathalie and Rodney Turner (2022). Advanced Introduction to Megaprojects. Edward Elgar Publishing, Basel.
12. Favari Edoardo and Franca Cantoni (2022). Complexity and Sustainability in Megaprojects. Springer Nature, Berlin.
13. Siemiatycki Matti (2020). Cycles in Megaproject Development. Oxford University Press, Oxford.
14. Kumar B Rajesh (2023). Project Finance: Structuring, Valuation and Risk Management for Mega Projects. Springer Nature, Switzerland AG.

Recommended Journals

1. Dupont Veronique. (2011). The Dream of Delhi as a Global City. International Journal of Urban and Regional Research.
2. Flyvbjerg Bent, (2014). What You Should Know About Megaprojects and Why: An Overview. Project Management Journal, April/May 2014.

Course Code	As per Institutional Policy
Nature of Course	Major SGPP – 32
Course Title	MULTI-SPATIAL GOVERNANCE - TERRITORY AND POWER
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand urban governance hierarchy (public, private, co-governance, NGOs, etc) as well as structure in planning at various levels along with various organizations working at different levels.
- to inform the students about the power, territory and meta-governance in city region.

Course Contents

Unit 1: Policy and Territory

Territoriality and Blurred Policy regime: Legal Boundaries, Administrative Boundaries, Geographical Boundaries, Governance Boundaries, Sectoral Boundaries; Spatial Governance, Contestations and Conflicts: Urban, Metro region, planning area, local self-government boundary, public autonomous institutional boundary as per the T & CP Act; Census Boundary: Mega City, Metro, Urban, Towns, Small and Medium Towns, Census Towns and Villages; State and Central Boundaries and their Rights: Social, Political and Economic Dimensions and their impact on spatial spill overs and development.

Unit 2: Power, Finance in Multi-Spatial Governance

Power and Finance at all levels of Governance as per Constitutional Obligations; Role of Central and Finance Commissions and their recommendations; Norms and Standards by CFC and SFC for sectoral policies for Finance allocation; Multi-spatial governance and its complexities: Sectoral, Spatial and Institutional hierarchy and project convergence and their accountability and responsibility; Governance Indicators: Global Governance Indicators, National Indicators.

Unit 3: Collaborative Governance, Co-Governance, Co-Production and Contracts

Concept of New Governance, Collaborative Governance, Co-Governance and Co-Production: Displacement, Revolution and Urban Transformation; Concept and its application in spatial planning, infrastructure sector, industrial, service sector and other sectors; Formulation of Institutional agreements, collaborations, contracts for spatial development; Financing and Profit Sharing in the case of private sector; Case Studies in successful sectors; Concept of Conflicts and Resolution in Planning.

Unit 4: New Forms of Governance

Shifts in Urban Governance: New State Spaces: Scaling and Rescaling: Urban Decentralization in Indian Cities: Neighbourhood level wards committees, Institutionalizing people's participation in urban governance, New Tools for Solid Waste Management; Governance in Cities: Chennai, Mumbai, Kolkata, other states; Co-Governance, Empowerment with Carbon Net-Zero policy; Urban scoping and governance; Vision and Governance: Case of India 2050, Singapore 2065.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the idea of territory and how it changes for various institutions and policy space.
- to appreciate the multi-governance system and how the power and territory interface in urban regions and the players interacts to govern the city and its region.

References:

1. Ackerman J (2004). Co-governance for Accountability: Beyond 'Exit' and 'Voice'. World Development. Elsevier, Amsterdam.
2. Banerjee A. (2004). The future and functions of the metropolitan planning committee: Case of Kolkata Metropolitan Planning Committee. Masters' Thesis in Urban Planning, School of Planning and Architecture, New Delhi.
3. Baud ISA, J De Wit (2008). New Forms of Urban Governance in India: Shifts, Models, Networks and Contestations. Sage Publications, New Delhi.
4. Brenner Neil (2004). New state spaces: Urban governance and the rescaling of statehood. Oxford University Press, New York.
5. GiZ (2018). Approach to a Draft State Land use (Planning) Policy: Base Report: Tamil Nadu. German Technical Collaboration: Government of India for the States of Tamil Nadu Report. New Delhi.
6. GiZ (2018). Land use (Planning) Policy: Thematic Consultations: Outcomes for Environment, Economy and Society. German Technical Collaboration: Government of India for the States of Tamil Nadu and Odisha Report. New Delhi.
7. Mohanty Prasanna K (2014). Cities and Public Policy: An Urban Agenda for India. Sage Publications India Pvt Ltd. Delhi.
8. Odisha State, Department of Housing and Urban Development (2019). Odisha State Land use (Planning) Policy, Bhubaneswar. State Government of Odisha.
9. Sturzaker J., A. Nurse (2020). Rescaling Urban Governance, Planning, Localism and Institutional Change. Policy Press, England.
10. United Nations, Asian Development Bank and United Nations Development Programme (2023). Delivering on the Sustainable Development Goals through Solutions at the Energy, Food and Finance Nexus'. Bangkok.
11. MacKinnon Danny, Nadir Kinossian, Andy Pike, Vincent Béal, Thilo Lang, Max Rousseau and John Tomaney (2023). Spatial Policy since the Global Financial Crisis. New Castle University. England
12. Electronics and Information Technology Ministry of (2023). 75@75: India's AI Journey. Ministry of Electronics and Information Technology. Government of India, NEGD, NASSCOM Initiative. MEITY, Government of India, New Delhi.

Recommended Journals

1. Baud, I.S.A. and N. Nainan. (2007). Negotiated spaces for representation in Mumbai ward committees: advanced locality management and the politics of middle-class activism. paper presented at 'India's Development: Even or uneven?', NAERUS Conference, DPU, London, 7–9 September.

Course Code	As per Institutional Policy
Nature of Course	Minor SGPP – 31
Course Title	INSTITUTIONAL GOVERNANCE AND LAWS
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand the complexities of governance of various institutions - public, private, NGOs, opinion makers, stake holders in the formal and informal policy making reflected in spatial development.
- to understand the rights related to spatial planning as per the Constitution of India and the use of the provisions to develop spatial policies and implementation by the states.

Course Contents

Unit 1: Introduction to Law and Land Institutions

Type of institutions, their role and relevance (legal, political, social, cultural and economic institutions); formal and informal institutions and spaces: their interface, conflicts, reach and their effectiveness in planning; Analysing the institutions: Methods, process and evaluation; Role of the State in Planning: Market facilitative, regulatory and monopoly power; Hierarchies, Scales and Levels of Planning Institutions; Formal and informal institutions such as constitutions, electoral rules, property rights, and civil rights; How and why people in different groups, countries, and cultural context of institutions to facilitate collective action; Whether different groups construct distinctly different institutions to deal with similar problems and why similar institutions seem to work differently in differently in distinct societies; Law Institutions and their role in spatial planning.

Unit 2: Indian Constitutions and Governance

Significance and Objectives of Legislation; Constitutional basis and provisions relating to land, its development and use; Overview of legal tools in various components of Urban, Rural and Regional Planning & Development; Evolution of Planning Legislation in India; Types and description of various Acts: Town and Country Planning Acts, Panchayati Act, 73rd and 74th CAA and corresponding State Versions; Improvement Trust Act, Metro Planning and Development Authorities Act: objectives, contents, procedures for preparation and implementation of regional plans, district development plan, master plans for towns, blocks and villages, town planning schemes.

Unit 3: Acts and Governance Interface

Various Acts related to urban governance; Peripheral Development Act; Corridor Restricted/Regulated guidelines/Act; Land resources, environment protection, public participation in statutory process; Land Acquisition and Settlement Act; Town and Country Planning Act; Other Acts related to Infrastructure: NHAI, Port, Airport and Railways, and Inland waterways; Regulations, Financial Accountability and Functional Accountability at various stages/hierarchy; Concept of productivity, reward and punishment in Public and Private Sector; Comparison of Land Development by city Development Authorities in relation to Private Real Estate Developers.

Unit 4: Professional Activities and Responsibilities

Aims and objectives of professional institutes and bodies in planning; professional roles and responsibilities of planning consultants; Professional ethics; Responsibilities towards clients,

fellow professionals and public; Scope of services for different projects; ITPI Headquarters and Chapters role in planning: capacity building, dissemination of information, collaborations, and seminars/conferences and Faculty Development Programmes; ITPI's collaborations with Institutions in India and Abroad, International Institutions (UN, G-20), Commonwealth Groups, and developing bilateral agreements for developing Town and Country Planning; Professional communication through publications, Conferences, Workshops and FDPs.

Course Outcomes: Upon the completion of this course, the students will be able

- to know the constitutional rights for spatial developments (from housing to climate, air pollution, transport and traffic planning, land encouragement, etc.).
- to appreciate the process of Bill formulation and its approval by the Parliament of India.

References:

1. Institute of Town Planners, India (2003). Memorandum Articles of Association and Byelaws. New Delhi.
2. Kulshrestha, S. K. (2012). Urban and Regional Planning in India: A Handbook for Professional Practice. Saga Publications, New Delhi.
3. Naseem Mohammad (2011). Environmental Law in India. Kluwer Law International, Netherlands.
4. Saxena A. (2020). Land Law in India. Routledge, London.
5. Bakshi P.M. (2023). The Constitution of India. Lexis and Nexis Publication, New Delhi.
6. Kumar Akhil and Twinkle Sharma (2024). Constitutional Law of India. Allahabad Law Agency, Allahabad.
7. Ministry of Housing and Urban Affairs (2024). The Constitution (74th Amendment Act, 1992). Government of India, New Delhi.

Course Code	As per Institutional Policy
Nature of Course	Minor SGPP – 32
Course Title	RESEARCH METHODOLOGY
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various types of research methods and research design both quantitative and qualitative for carrying out research in the real field.

Course Contents

Unit 1: Introduction to Research

Definition and needs of research; Types of research used in urban planning; Importance of research methodology in urban planning; Scientific research and methods; System approach of research; Levels of research: micro and macro; Major steps in the conduct scientific research, induction, deduction & verification; Selection and formulation of research problems; Difference between research methodology and research methods; Data types and sources: primary and secondary; Sampling types and techniques.

Unit 2: Paradigm, Hypothesis and Methods of Testing the Hypothesis

Research paradigm and procedural methods: theoretical meaning, importance and different concept of hypothesis; Formulation of hypothesis; Role of statistical measures in hypothesis testing; Measures of central tendencies, standard deviation and correlation and regression; Qualitative scales.

Unit 3: Qualitative and Quantitative Research, and Report Writing

Qualitative and quantitative approach to research: review of literature, content analysis and thematic analysis; Research compilation and report: contents and style, factors in the organization of a research report, writing of foot notes, quoting styles, references, cross referencing and bibliography; Issues & areas of urban planning research and data; Introduction of Qualitative and Quantitative software.

Unit 4: Theorising, Modelling, Applications and Validation

Definition of Concept, Theory and facts; Process of theorization: Meaning, definition and classification of Model; Understanding, evaluation and validation of models related to land use, transportation, location/allocation of activities, land value, accessibility; simulation of urban growth in terms of their objectives, theoretical structure, mathematical formulation, applications and limitations; Validation of Research and its presentation techniques.

Course Outcomes: Upon the completion of this course, the students will be able

- to use the various research methods both qualitative and quantitative
- to use the various research design methods
- to appreciate the art of report writing
- to use various methods to conduct scientific research

References:

1. Kumar Ranjit. (2005). Research Methodology: An Introduction. Pearsons Education. Baba Balak Nath Printers, New Delhi.
2. Crotty Michael. (2003). The Foundations of Social Research: Meaning and Perspective in the Research, Sage Publishers, London.
3. Gomm Roger. (2003). Social Research Methodology: A Critical Introduction. Palgrave Macmillan, Manchester.
4. Wilkiinson T.S. and P.L. Bhandarkar. (1984). Methodology and Techniques of Social Research. Himalaya Publishers, New Delhi.
5. Goode, W.J. and P. K Hatt. (1982). Methods in Social Research. McGraw-Hill Inc., New York.
6. Keeble Lewis. (1972). Principles & Practice of Town & Country Planning. Estates Gazette, London.
7. Gopal M.H. (1970). An Introduction to Research Procedures in Social Sciences. ASIAN Publication House, Delhi.
8. Gibbs Jack P. (1960). Urban research Methods. D. Van Nosttrand Co. Inc., New York.
9. Kothari C.R. and Gaurav Garg (2023). Research Methodology: Methods and Techniques. New Age International Publishers, New Delhi.
10. Aguinis Herman (2024). Research Methodology: Best Practices for Rigorous, Credible, and Impactful Research. SAGE Publications, London.
11. Flick Uwe (2020). Introducing Research Methodology: Thinking Your Way through Your Research Project. SAGE Publications, London.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO - 3IA THESIS PRELIMINARIES
No. of Credits	2 (L: 0; T:2; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand current issues & research areas in the relevant field of urban planning

Course Contents

Students undertake independent study/research to explore and develop an area of his/her own choice. It should cover identification of thesis topic after scanning later literature and identifying gaps, typology of research, Methods of research, time scheduling, preparation of samples, questionnaires/interview schedules, identifying stakeholders/sample, area/case study, and preparation of organizing the interview /notes, report, and abstract for canvassing during interviews.

The theme of the thesis should adopt a fresh approach in formulating a concept of developing an effective and useful methodology. Each student shall prepare a thesis abstract on a selected topic under the supervision of a supervisor.

At the end of the thesis preliminaries, the students are required to submit a hard copy of the abstract

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the process & importance of literature survey in identifying research areas to finalize the methodology of research and preparation of work schedule.
- to finalize the sample size, questionnaires, and models for analysis.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO – 3B SPATIAL GOVERNANCE
No. of Credits	2 (L: 0; T:0; U: 4)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to impart knowledge of spatial governance from the point of view of drivers of change, flows, governance process, livelihood at various scales, use of technology in governance and institutional convergence in space.

Course Contents

Course will impart knowledge to identify parameters that drives spatial governance, processes, stakeholders, livelihood at various scales and how the governance process and implementation is carried through technology tools at village to District Level.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate various stages of governance system, at different scales, multi-scenario institutions and their governance system through technological tools, which will help them in converging policies, programmes, and projects through governance system.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 31
Course Title	PLANNING STUDIO – 3C CAPSTONE PROJECT ON SPATIAL PUBLIC POLICY (REGIONAL)
No. of Credits	6 (L: 0; T:1; U: 10)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to exposed to Metro Regional/District/State scale to showcase the interfacing of state level policy and metro regional level in terms of spatial policy.
- to understand the convergence of actors, sectors, and institutions to the preparation of a policy at a particular scale.

Course Contents

Focus of this studio is to interface the State Level Polices of various sectors, and mapping the projects in space and the convergence of projects. It will assess the interlinking of physical, social and financial targets and their achievements in space. Focus will be on the role of actors/agents/institutions on the one side, the multi-sector and the vertical and hierarchical ladders and conflicts, contestations, and convergence for identifying multi-dimensional scoping/vision and implementing plan for the space in a given period.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate various stages of governance system, at different scales, multi-scenario institutions and their governance system through technological tools, which will help them in converging policies, programmes, and projects through governance system.

Note: The students accompanied by their studio incharge/s should visit the selected site/area/city/region for 7-10 days to collect the data required for the present studio exercise.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 32
Course Title	INTERNSHIP (8 WEEKS) to be undertaken by the students during summer vacations after 2nd semester and credits will be included in the 3rd semester
No. of Credits	AUDIT (L:-; T:-; U:-)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to get a real time exposure in various projects through real time study in the public and private sector Planning Agencies.

Course Contents

Student will be getting hands on experience in environmental interface with spatial planning, in the areas of air, water, land, and other pollutions including waste management methods.

Course Outcomes: Upon the completion of this course, the students will be able

- to get practical exposure to various types of planning work being done in the organization.

Course Code	As per Institutional Policy
Nature of Course	Major SGPP - 41
Course Title	CLIMATE POLICY, EVALUATION, AND IMPACTS
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand commitments to climate change and actions taken towards the global goals to assess the lobbying for climate change from local to international actors adversely affecting the progress.
- to expose the process of climate policy for major sectors and international collusion, networks facilitate for alternative energy options.

Course Contents

Unit 1: UN Climate Change Conference

UN Conference on Climate Change: Kyoto Agreement, Paris Agreement; Members Call: Global Warming, Greenhouse gas emissions and targets, Nationally Determined Contributions (NDCs), Long-Term Strategies: LT-LEDs, Technologies, Capacity Building and Enhanced Transparency Framework (ETF); CoP Resolutions and their implications on India.

Unit 2: India: Climate Change Policy Commitments and Alliances

India's experience: heat islands and built-up urban areas, frequent floods, landslides, droughts, and depletion of ground water, forest, glacier Melt, sea level raise, agriculture and food security, energy security, water security, Health and Conflicts; International Solar Alliance; Big Cat Alliance; Infrastructure for Resilient Island States (IRIS); IPCC; COP: India's Panchamrit Policy; Mission Life; Green Development Act, CDRI, Lead IT, G20.

Unit 3: Policy Tools to tackle Climate Change in India

NDC; Green House Gas Emissions (GHG); 5 Pillars: Global Renewable Energy, Energy Efficiency improvement, for Reduction of Emission Intensity, Non-Fossil fuels and blending; City Level and Regional Level efforts; Policy Initiatives at Planning Level (examples from various Cities in India); Innovative and large-scale financing measures; RBI's role to address Climate Change.

Unit 4: Targets and Achievements

Sector Targets for Climate Change and their policies; CoP targets and India's Targets; Achievements by India so far; Third National Communication based on GHG inventory; Adaptation Communication; Emission Intensity and GDP; Solar Incentives; New Collective Quantified Goal and resource mobilisation for climate funding; RBI's Disclosure framework on Climate related financial risks: 4 key areas: governance, strategy, risk management and metric and targets; Climate Finance: Local and Multi-later Sources for Climate Change Mitigation.

Course Outcome: Upon the completion of this course, the students will be able

- to appreciate the current international and national agenda of climate change and its handling techniques.
- to know the national and international lobbying for each of the climate related sectoral policy and the policies that adversely or otherwise facilitate the reduction of climate change.

References:

1. Forum Climate Modelling, India (2009). India's GHG Emissions Profile: Results of Five Climate Modelling Studies. Ministry of Environment and Forests, Government of India, New Delhi.
2. Ministry of Environment and Forests (2024). Engaging with the Green Climate Fund: A digital toolkit for India. Ministry of Environment and Forests, Government of India.
3. Reserve Bank of India (2023). Report on Currency and Finance 2022-23: Towards a Greener Clearer India. Department of Economic and Policy Research, Reserve Bank of India, Mumbai.
4. Climate Change, Council Prime Minister's (2021). National Action Plan on Climate Change. Government of India, New Delhi.
5. Gareth Bryant and Sophie Webber (2024). Climate Finance: Taking a Position on Climate Futures. Agenda Publication Limited, New Castle.

Course Code	As per Institutional Policy
Nature of Course	Major SGPP - 42
Course Title	ECONOMICS AND FINANCE OF PUBLIC POLICIES
No. of Credits	3 (L: 2; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to understand various fiscal and finance policies in India and their influence on transforming spatial developments, which includes value capture, fiscal responsibility, and RBI/NHB/SEBI regulations.
- to impart knowledge interface between fiscal and financial policies at all levels.

Course Contents

Unit 1: Fiscal Policy Making Process and Lobbying: its Impact on Development

Urbanisation as a tool for fiscal resource mobilisation and GDP/DDP at all levels; Centre and State Fiscal/Budgetary Policy Making: Role of various sector lobbies; Budget and spatial planning: spatial targeting, people targeting, sectoral targeting, and growth trigger policies; Revenue sharing: Centre-State Finance Commissions, State-Local Self Government Finance Commissions and Spatial growth; Fiscal Tools and Fiscal Sustainability for spatial planning at all levels.

Unit 2: Monetary Policy Making, and its impact on Spatial Development

Relationship between Fiscal and Monetary Policy and their impact on spatial growth; Role of RBI/NHB in spatial growth through Monetary/Credit Policy; Sectoral Boost through Credit Policy: Housing, Land Development and Infrastructure (Transport, Energy, Road, Water and Sanitation); Direct and Indirect lending to Local Self-Government, Public Autonomous Institutions, and Private Sector.

Unit 3: Models for Financing Spatial Development and Infrastructure

Internal Resource Mobilisation Policies: Local Self-Government Institutions, Boards, Development Authorities, Development Corporations; Difference between these institutions in terms of finance mobilisation and constraints in resource mobilisation; Land as an equity, Equity Finance, Bi-lateral, Multi-lateral funding and conditionality's; Pricing Policy: Local Self-Government, Boards, Authorities, and Development Corporations: for Land, and for Infrastructure; Co-Financing and Co-Production and equity.

Unit 4: Local and State Economic Policy and Spatial Growth

State and Local Economic Development Policies (LED) and its impact, inducement and appeasements through fiscal tools; Urban/Regional Strategy and fiscal and financial inducement; Social, Political, and Economic Constraints for Fiscal and Financial Instruments for spatial growth; Concept of Participatory Budgeting and Spatial Budgeting for spatial growth; Role and functions of Public Undertakings/Autonomous public Institutions and resource mobilisation for spatial growth; Case Studies: Development Authorities (Such as DDA, CMDA, BMRDA, MMRDA, NOIDA/GNOIDA, etc), and Development Corporations (CIDCO, Railway Land Development Authority, etc); Financing and operating Master Plans and Regional Plans.

Course Outcomes: Upon the completion of this course, the students will be able

- to appreciate the fiscal and financial domain of policy and their relation with spatial planning.

References:

1. Ahluwalia Isher Judge and P. K. Mohanty (2019). Unlocking Land Value for Financing Urban Development in India. ICRIER, New Delhi.
2. Ahluwalia Isher Judge, Ravi Kanpur and P.K Mohanty (2019). Urbanisation in India: Challenges, Opportunities and the Way Forward. Sage Publishers, India.
3. Jalan Bimal (1999). Indian Economic Policy: Preparing for the Twenty-First Century. Penguin Random House, New Delhi.
4. Kletzer M Kenneth, Chetan Ghate (2016). Monetary Policy in India: A Modern Macroeconomic Perspective. Springer, New Delhi.
5. Pathak Bharti (2024). Indian Financial System, Markets, Institutions and Services. Pearson Education, Bengaluru.
6. Gupta Ashish and Piyush Tiwari (2022). An Analysis of Land and Property Development Models, and Stakeholders: A case of National Capital Region, India. Land Use Policy. Elsevier, Amsterdam.
7. Kapila Uma (2024). Indian Economy: Performance and Policies. Academic Foundation Publication, Gurgaon.

Course Code	As per Institutional Policy
Nature of Course	Minor SGPP - 41
Course Title	EMERGING SPATIAL TECHNOLOGIES AND GOVERNANCE
No. of Credits	2 (L: 1; T:1; U: 0)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to expose about the convergence of delivery governance after the introduction of digital technology at all levels, i.e., from ward level to city region.

Course Contents

Unit 1: Concepts and Hierarchy

Typology of Technologies: Remote Sensing, Drones, Radar, Mobile Technology, SAR, etc; Use of above technologies in spatial planning decisions; Spatial Data Infrastructure: Concepts, Contents, Nature and SDI hierarchy; Global, National, Regional and Local SDI initiatives; Building a SDI and using it in planning, governance and decision making process; Open Geospatial Consortium: ISO standards (TC211); Data streaming and mining in Spatial Data Infrastructure for Governance.

Unit 2: From Global to Local SDI Applications

National SDI Initiatives: NRDMS: Multi- level spatial data infrastructure, NSDI: Assimilation and Dissemination and Data warehouse; State SDI: NCT Delhi SDI, Karnataka and Kerala Portals; Case studies from various levels. Karnataka's Land Management Programme: Bhoomi, geo portal assisting local to state level planning process; Gujarat's Tax programme, Madhya Pradesh's Land Titling, UP, Andhra Pradesh's Land Card, etc.; Application to coastal area planning: Tamil Nadu coast; Use of GIS application for Governance: PMGSY, PMAY, Education and Health: Central Monitoring; AGMARK: Agricultural Production and Marketing system through NIC portal; Use of Meteorology data through Remote Sensing interfaced with GIS, simulating Disaster Scenario.

Unit 3: SDI application in Planning and Decision Support

SDI: Location based technology development, Interoperability arrangement for geospatial data and ontology mapping; Application in Bhuvan and its spatial applications; Population Data Sets, Natural Resource Repository; Integrated Water Resource Management; mKrishi: application in agriculture and rural development; Geospatial application in transportation, disaster management and conservation; Spatio-temporal data modeling and analysis; 3-D mapping of land and its use in city and regional planning; Geo visualization of landscapes: rural and urban; Spatial inequalities.

QGIS & PGIS: Definition, concept and need; PGIS and PPGIS; Geo-referencing and visualizing indigenous spatial knowledge; Ethical issues in PGIS; PGIS for regional level technology based information system; Case studies and application of PGIS in India; Application of QGIS in government sector.

Unit 4: Technology in SDI and Decision Support System

Real time technologies and their application: Crowd Sourcing for Disaster, Using mobile network with citizen science for disaster awareness and mitigation; Landslides monitoring in Himalayan region, web based spatial-temporal prediction of landslides; Decentralization

planning in Uttarakhand: web based model; Satellite based and other real time technologies and their use in identifying physical transformation, Its application in urban and rural areas: slum formation, illegal colonies, flash flood warning system in river and coastal belt, etc.; Other latest soft wares for spatial planning.

Course Outcomes: Upon the completion of this course, the students will be able

- to interface the GIS skills to spatial planning to simulate, prepare, manage/monitor and evaluate spatial planning through the digital network system.

References:

1. Coleman D. J. and J. McLaughlin (1998). Defining Global Geospatial Data Infrastructure (GGDI): Components, Stakeholders and Interfaces. Canadian Science Publication, Ottawa.
2. Cooper A. K. and A. S. Nielsen (2000). Global Spatial Data Infrastructure ICA Commission on Spatial Data Standards.
3. Kresse W. and D. Danko (2012). Springer Handbook of Geographic Information. Vol.1. Springer-Verlag, Berlin Heidelberg.
4. Masser I. (1998). The first Generation of National Geographic Information Strategies. Springer, Berlin.
5. Ministry of Science and Technology. (2011). National Spatial Data Infrastructure: India Aspiration. Department of Science and Technology, Government of India. New Delhi.
6. Blokdyk Gerardus (2020). Spatial Data Infrastructure A Complete Guide. 5star Cooks, Trivandrum.
7. Mukherjee F. (2020). GIS and E-Governance for Urban Local Bodies in India: A Qualitative Approach. IGI Global Publishing, New York.
8. Ramdani F. (2023). Exploring the Earth with QGIS: A Guide to Using Satellite Imagery at Its Full Potential. Springer Nature, Berlin.

Recommended Journals

1. Foley R. (2009). Integrated Spatial Data Infrastructure. International Encyclopedia of Human Geography, Elsevier Journals, pp. 507-511.
2. Gregory Giuliani N. R. A. L. (2011). Grid-enabled Spatial Data Infrastructure for environmental sciences: Challenges and opportunities. Future Generation Computer Systems. Elsevier Journals, Vol.27, No.3, pp. 292-303.
3. Loenen B. V. (2014). Spatial Data Infrastructures at Work: Analysing the Spatial Enablement of Public Sector Processes. International Journal of Applied Earth Observation and Geo-information. Elsevier Journals, Vol. 33, pp. 341-344.

Course Code	As per Institutional Policy
Nature of Course	Skill Development SD - 41
Course Title	PLANNING STUDIO THESIS
No. of Credits	12 (L: -; T:-; U: -)
Internal Assessment	As per Institutional Policy
End Semester Assessment	As per Institutional Policy

Course Objectives: The student will be enabled

- to produce an original, well- researched, and well- written thesis that demonstrates expertise and contributes to the field of spatial policy and governance.

Course Contents

Each individual student will be guided by a faculty to understand and develop the spatial policy formulation process, Strategies, Implementation plan, and Evaluation Plan. A student will be developing the Institutional Governance System to implement the Spatial Plan for a selected City/Region of his/her own.

Course Outcomes: Upon the completion of this course, the students will be able

- to develop an original research question or hypothesis related to a specific field of study.
- to design and propose a rigorous research methodology to investigate the research question.
- to demonstrate critical thinking, creativity, and intellectual independence in the research process.
- to show proficiency in academic writing, including proper citation, referencing, and formatting.
- to meet the academic and professional standards of research and scholarship in the field.

SECTION V

BASKET OF VALUE-ADDED AND ELECTIVE COURSES

