

Master of Planning (Town & Country Planning)**Semester- I**

PLANNING STUDIO-1			
Course Code	2MTCP101	CIE Marks	50
Teaching Hours/Week (L:S:SDA)	12 hrs (4:8:2)	Viva Marks	50
Total Hours of Pedagogy	156	Total Marks	100
Credits	9	Examination duration	15 mins per student
Course Learning objectives: By taking this course Students will be able to: • Apply planning principles to design spaces that address the needs of rural and urban communities through critical analysis of socio-economic and spatial characteristics. • Understand the basis for zoning regulation and building bylaws in various contexts defined for neighbourhood plans and rural development Plan by using norms, guidelines, and innovative approaches. • Understand the division of land use and distribution patterns for both rural and urban human settlements.			
Foundation Studio (2 weeks): ▪ Basic principles, aims and objectives of physical planning. ▪ Space standards, normative standards, performance standards ▪ Topography map analysis Digitize topographic sheets and interpret both relief and cultural features ▪ Urban Development Plan Formulation and Implementation (URDPFI): Planning norms and standards. ▪ Development Control: Zoning Regulations, Sub-division Regulations and Building bye-laws and Regulations for conservation of historical, heritage and natural areas. ▪ Neighbourhood planning: <i>Principles and Techniques, Site Analysis.</i> ▪ Planning Surveys, <i>socio-economic surveys</i> and studies for preparation of Master Plans. ▪ Preparation of Master Plans for Local Planning Area. ▪ URDPFI Guidelines for Plan Preparation and Implementation.			
Teaching-Learning Process	Blended learning: Power point presentation to elaborate on key topics.		
Exercise-2: Neighbourhood Appreciation (3 weeks)			
The neighbourhood appreciation exercise aims to enable the students to understand and contextualize the location of the area to the city, zone, and area in which the particular place is situated. This is done with the socio-economic, spatial, and cultural characteristics of that city, zone, location, etc. The main purpose is to make the students appreciate the locational attributes of land parcels for future development in a city. Due to the size of the area, this exercise is done in groups of students being assigned to a particular area. The following planning issues at the area level should be identified:			

- Review of the Master Plan /Zonal/ Area plan concerning the selected areas.
- Appreciation/Analysis of ward-level data.
- Perception of areas in terms of legal/illegal/authorized/unauthorized, Slums, Urban Aesthetics.
- Social Categorizations of people- Population composition, people's perception about the area, and its planning problems.
- Existing land use including agricultural land and land-use conflicts, extent (%) of broad land use such as commercial, industrial, residential, institutional, and recreational.
- The extent of formal/informal activities present in the area including their location and conflicts.
- General land tenure of the area and land value for different uses
- Major types of transport, type of roads, the hierarchy of roads, type of transport modes used.
- Amenities: Location of Socioeconomic and Physical infrastructure and their problems as perceived by the local population. Look for specific infrastructure such as Water supply, drainage (water logging areas), waste collection and disposal system, sanitation, education, healthcare and banking facilities, etc.
- Environmental Issues: Open Spaces – Availability and extent of open space to the built-up area, garbage disposal, encroachment (through photographic evidence and sketches)
- Locating the study area in the zone, city, and regional context for all the above aspects.

**Teaching-
Learning
Process**

Blended learning: Power point presentation and webinars.
Data Collection & Analysis.
Student Presentations: Student Group presentations.

Exercise-3: Rural Development Plan (Group assignment) (3 weeks)

- Preparation of a development plan for a rural habitat (Village)
- Conduct primary and secondary data collection on
 - Demography,
 - Infrastructure,
 - Economic base,
 - Services, Market,
 - Social amenities
- Evaluate the collected data using RADPFI Guidelines..
- Prepare a Village Development Plan and policy document supported by GIS-based spatial analysis.

**Teaching-
Learning
Process**

Blended learning: Power point presentation and webinars.
Data Collection & Stakeholder Engagement.
Collaborative and Cooperative learning: Students should work as a group and present the compilation of work starting with Introduction, Preparing Master Plan report and Land Use Maps.

Studio –

Students have to complete the Studio Assignments handed by the Studio Coordinator/Faculty in accordance with course work. Faculty and Students (in a Faculty-Student ratio of not more than 1:10) are to be involved in small groups to interact together to enhance learning and application skills. Students should interact with Planning and Civic agencies of medium and large-sized towns/cities to understand their functioning and problems or foresee what can be undertaken for study in the form of research/ case studies/projects, and for creative and innovative methods to solve the identified problem.

- Students must work on different software/s(tools)to simulate, analyse, and authenticate the output to interpret and conclude.
- Students must familiarize themselves with codes of standards to narrow the gap between academia and the industry.
- Students shall prepare reports for the exercise(s) for which they will be assessed in the SEE Viva Voce. All activities should enhance student’s abilities for employment and /or self-employment opportunities, management skills, Statistical analysis, fiscal expertise, etc.

These exercises are intended to give students –

- Confidence in working along with Planning and civic agencies.
- Work on different software/s (tools) to Simulate, analyse, and authenticate the output to interpret and conclude.
- Understand the various stakeholders – both public and private.
- Involve in case studies and field visits/fieldwork.
- Accustom with the use of various Acts and legal provisions in preparation of Master Plans/Regional Development Plans/Appreciation reports, etc.,

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Examination (SEE) i.e., Viva voce is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in Viva is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Viva-voce) taken together.

Continuous Internal Evaluation:

CIE marks shall be awarded by a committee comprising of Principal/Dean/ Special Officer/ PG Course Coordinator/ HOD/ Guide of the department. The CIE marks awarded for Planning Studio, shall be based on tests/assignments based on Exercise-1 (Foundation Studio), Exercise-2 (Neighbourhood appreciation), Periodic progress of Exercise-3 (Rural Development Plan) of the student throughout the semester, presentation skill in seminars, and submission of the report.

Semester End Examination (Viva voce):

1. The student needs to submit his/her report done for Exercise-3 (Masterplan revision), including the data collection for the Viva examination, at least one day prior to the Viva examination to the PG course coordinator/HOD/Special officer.
2. The Viva-voce will be evaluated by one external examiner appointed by the University along with one internal examiner appointed by the Department.
3. The viva-voce marks awarded for Planning Studio, shall be based on the evaluation of report submission, presentation skill and performance in question-and-answer session in the ratio 30:10:10.
4. The viva-voce marks list generated is to be signed by both internal and external examiners and submitted to VTU in the sealed cover through the principal of the institution.

Suggested Learning Resources:**Books**

1. URDPFI guidelines, 2016, Ministry of Housing and Urban Development.
2. Census of India publications, Govt. of India.
3. Revised Master Plan 2016, Bangalore Development Authority, 2006.
4. Revised Master Plan 2031 draft, Bangalore Development Authority, 2017

Web links and Video Lectures (e-Resources):

1. Centre for Liveable Cities:
<https://www.youtube.com/c/CentreforLiveableCities>
2. Urban Planning Explained:
<https://www.youtube.com/channel/UC6GZxJAucQK7HBFynRG1Msw/videos>

Skill Development Activities Suggested:

- Guest Lecture from domain experts from Industry.
- Case Studies.
- Site Visits to Govt Agencies/Offices for understanding their roles and collecting information pertaining to the studio activities.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Critically evaluate physical planning principles, aims, and objectives, including space, normative, and performance standards.	L4
CO2	Assess topography maps and apply planning norms and standards in urban development plans (URDPFI).	L4
CO3	Develop rural habitat plans by collecting and analyzing primary and secondary data in line with RADPFI guidelines.	L5
CO4	Develop and implement zoning regulations, subdivision regulations, and building bylaws for conservation.	L5
CO5	Formulate a Rural Development Plan with stakeholder input and multiple development scenarios.	L6

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
3	Demonstrate creativity in the problem-solving process through professional quality graphic presentations, use of GIS software, and Policy decisions.	PO3
4	Acquire outstanding knowledge & software skills for redesigning, monitoring, and improving Cities and Regions' functioning.	PO4
5	Understanding the diverse needs of values and systems of society and providing Smart, Sustainable, and data-centric solutions.	PO5
6	Demonstrate design and policy solutions that integrate contextual, social, economic, cultural, ethical, and environmental concerns.	PO6
7	Ability to undertake independent/option-based research and exploration of advanced and emerging topics.	PO7
8	Appraise professional standards and ethical responsibilities as a team member/stakeholder.	PO8
9	Acquire outstanding knowledge and understanding of the current trends in Urban Planning.	PO9

Mapping of COs and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓								✓
CO2	✓			✓		✓			
CO3		✓	✓		✓		✓		✓
CO4						✓		✓	
CO5		✓			✓	✓		✓	✓

REMOTE SENSING AND GIS			
Course Code	2MTCP102	CIE Marks	50
Teaching Hours/Week (L:S:SDA)	4 hrs (2:2:0)	Viva Marks	50
Total Hours of Pedagogy	52	Total Marks	100
Credits	3		
Course Learning objectives: By taking this course: - Students are expected to have obtained the necessary skills in describing, illustrating the concepts of Urban data management. - Understand the concept of Remote Sensing applications in Town & Country Planning, also applying the elements of GIS and Geo-Spatial platforms for data analyzation - Apply remote sensing and GIS tools to analyse big data, meta-data in urban planning discipline.			
Module-1			
Basic principles of Remote Sensing Lecture - - Concept and Scope of Remote Sensing: Definitions, Process, and Characteristics of Remote Sensing System, Advantages and Limitations. - Concept of Electromagnetic Radiation (EMR): Wavelength Frequency-energy relationship of EMR, EMR Spectrum, its properties, EMR wavelength regions and their applications. - Energy Interaction in the atmosphere: Scattering, absorption, transmission, atmospheric windows. Energy Interactions with Earth Surface Features.			
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i> <i>Practical: Application of concepts into GIS/RS software and producing a portfolio</i>		
Module-2			
Remote Sensing platforms and sensors Lecture - - 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 Practical - - Show Remote Sensing 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 - False-colour composite and visual change identification - Feature identification and identification keys - Spectral profile generation			
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i> <i>Practical: Application of concepts into GIS/RS software and producing a portfolio</i>		

Module-3	
Advanced Remote Sensing analysis techniques Practical - - 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.	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i> <i>Practical: Application of concepts into GIS/RS software and producing a portfolio</i>
Module-4	
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 georeferencing Geography required for GIS - - Coordinate system and its types - Cartesian, Geographic, Projected - Northing & Easting and Latitudes & longitudes - conversion of lat-long 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	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i> <i>Practical: Application of concepts into GIS/RS software and producing a portfolio</i>
Module-5	
Advanced GIS functions - - Data processing and its visualization - Qualitative vs Quantitative data, Discrete vs Continuous data - Geoprocessing tools and queries - MCDM with AHP, DSM, DTM, slope and aspect, spatial interpolation, watershed analysis, model builder, etc - Digital Cartography - Creation of thematic maps, Composition, and colour schemes in a map and Various map elements including Map scales, Layouts, Legend, etc	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i> <i>Practical: Application of concepts into GIS/RS software and producing a portfolio</i>

Viva Deliverables -

Remote sensing project - The project should contain well-composed maps prepared using various Remote sensing tools and analyses learned across the whole semester and also using appropriate satellite imagery
Sample project examples: Land use/landcover change in a city over years, vegetation loss due to urbanization, Agricultural monitoring, etc

GIS project - The project should contain well-composed maps prepared using various GIS tools and analyses learned across the whole semester.

Sample project examples: Urban governance themes like (property tax, demographics, stormwater, etc), identification of suitable sites for urban development, morphometric analysis, etc

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Viva voce is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in Viva is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% in the sum total of the CIE (Continuous Internal Evaluation) and Viva- Voce taken together.

Continuous Internal Evaluation:

CIE marks shall be awarded by a committee comprising of Principal/Dean, Special Officer/ PG Course Coordinator/HOD and Faculties of the department. The CIE marks awarded shall be based on Quizzes/Internal examination set according to the faculty, progress of the student throughout the semester, presentation skills in seminars, and submission of the portfolios.

Viva voce Examination:

- The student needs to submit his/her portfolio as mentioned in the viva deliverables above, at least one day prior to the Viva examination to the Special Officer/PG course coordinator/HOD according to the format prescribed by the Department.
- The Viva-voce will be evaluated by one external examiner appointed by the University along with one internal examiner identified by the department/Special Officer.
- The viva-voce marks awarded shall be based on the evaluation of portfolio, presentation skill and performance in Question-and-Answer session in the ratio 30:10:10.
- The viva-voce marks list generated is to be signed by both internal and external examiner and submitted to VTU in the sealed cover through the principal of the institution.

Suggested Learning Resources:**Books**

1. Rafael C.G. and Woods R.E., 1992, *Digital Image Processing* Pearson, 4th edition
2. S Jayaraman, *Digital Image Processing*
3. Van Sickle Jan, 2017, *Coordinates*, Taylor and Francis
4. McHaffie Patrick , 2018, *GIS* Taylor and Francis
5. Bosso Maier Terry , 2016, *Online GIS and Spatial Metadata*, Taylor and Francis
6. eBooks Premium, 2017, *QGIS: Becoming a GIS Power User*
7. Quattrochi Dale A. 2017, *Integrating Scale in Remote Sensing and GIS* , Taylor and Francis,
8. Shekhar , *Encyclopaedia of GIS*, Springer
9. Alberto Gemelli, Adriano Mancini, Claudia Diamantini, Sauro Longhi , Springer, *GIS to Support Cost-effective Decisions on Renewable Sources*

Web links and Video Lectures (e-Resources):

VTU online MOOC Course

<https://online.vtu.ac.in/course-details/Geographic-Information-Systems-IIT-Roorkee>

Esri MOOC Course

<https://www.esri.com/training/catalog/5b31988374691f7ccc5c2a35/all-of-the-esri-moocs/>

Skill Development Activities Suggested

- 30 Day Map challenge
- ESRI MOOC activities
- Exploring new GIS tools and models

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Analyse the principles and characteristics of remote sensing and electromagnetic radiation.	L4
CO2	Assess remote sensing platforms, sensors, and their applications	L4
CO3	Apply advanced remote sensing techniques for spatial data analysis	L5
CO4	Utilize GIS components and data structures in spatial analysis	L5
CO5	Create thematic maps and perform geoprocessing using GIS tools.	L6

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
3	Demonstrate creativity in the problem-solving process through professional quality graphic presentations, use of GIS software, and Policy decisions.	PO3
4	Acquire outstanding knowledge & software skills for redesigning, monitoring, and improving Cities and Regions' functioning.	PO4
5	Understanding the diverse needs of values and systems of society and providing Smart, Sustainable, and data-centric solutions.	PO5
6	Demonstrate design and policy solutions that integrate contextual, social, economic, cultural, ethical, and environmental concerns.	PO6
7	Ability to undertake independent/option-based research and exploration of advanced and emerging topics.	PO7
8	Appraise professional standards and ethical responsibilities as a team member/stakeholder.	PO8
9	Acquire outstanding knowledge and understanding of the current trends in Urban Planning.	PO9

Mapping of Cos and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓								✓
CO2	✓			✓					
CO3			✓	✓			✓		
CO4			✓	✓					
CO5			✓	✓					

HISTORY AND THEORY OF PLANNING			
Course Code	2MTCP103	CIE Marks	50
Teaching Hours/Week (L:S:SDA)	3 hrs (3:0:0)	SEE Marks	50
Total Hours of Pedagogy	39	Total Marks	100
Credits	3	Exam Hours	03
Course Learning objectives: By taking this course Students will be able to: - Understand the evolution of human settlements and the philosophies guiding the early and modern Town and Country Planning with case studies - Explain the systems of City planning in pre-&post-industrial periods - Understand the various schools of thought guiding the theories on settlements and urban & regional planning			
Module 1			
Planning History A brief history of human settlements, from the Stone Age and milestones, in prehistoric to the historic period. Evolution of physical forms as a result of geographical, geological, climatic, social, economic, political, and technological aspects of human settlements. Ancient river valley civilizations (Egyptian, Mesopotamian, Indus valley, and Chinese). Types of plans described in Vedic Scripts (Swastika, Karmukha, Dandaka, Padmaka, etc.) Settlements and their physical forms during various dynasties up to the 18 th century and during colonization (Case studies – Jaipur, New Delhi, etc.), Town planning after independence (Case studies – Chandigarh, Gandhinagar, Amaravati, etc.).			
Teaching-Learning Process	Blended learning: Power point presentation to elaborate more on key topics.		
Module-2			
Town Planning after 18th Century The industrial revolution, Evolution of towns as per the functions of the towns, Constraints on city form, Elements of urban structure – Networks, Buildings, open spaces, etc. The form of the modern city in the age of automobile – Inner-city & Suburban area.			
Teaching-Learning Process	Blended learning: Power point presentation to elaborate more on key topics.		
Module-3			
Utopian Concepts and Contribution of Planners Theories and Philosophies by urban planners and philosophers like Patrick Geddes, Ebenezer Howard, Le Corbusier, Clarence Perry, CA Doxiades etc. (Case studies – Garden Cities, Satellite Towns, first-generation Towns, and New Towns).			

Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-4	
Theories of Urban Planning Scope, purpose, and methods of Planning, the nature, and purpose of Town and Country Planning at National, Regional and local levels. Land-use planning, determinants of Land Use and spatial patterns of urban land use, Concentric Zone model, Sector model, Multiple Nuclei model, etc. The economic base of the city, the parts of the town and their relationship, planning standards, site layout and development, zoning, and Building Bye-Laws.	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-5	
Settlement Analysis Use of techniques of Location Quotient, Coefficient of Localization; Locational attributes of activity and population; Techniques for the Understanding structure of urban areas, land values, and density patterns; space standards for facility areas, utilities, and networks; Population, Distance criteria; Performance standards; Analysis of planning standards and norms, and Case studies.	
Plan Preparation Techniques The setting of Goals and Objectives; Methodologies for preparation of structure plan and strategy plan techniques; plan implementation techniques; public participation and plan implementation; techniques of urban renewal and central area redevelopment; Contents of a structured plan	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.	
Continuous Internal Evaluation: The Internal Marking shall be done for 100 which will be scaled down to 50, the faculty in charge of the particular course can decide on any change in the structure of the internal examination which is to be conducted on 5th, 10th, and 15th weeks of the academic calendar preferably. The Internals shall be from a choice of written examinations/ Assignments/ Presentations allotted to students.	
Semester End Examination: - The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. - The question paper will have ten full questions carrying equal marks. - Each full question is for 20 marks. - There will be two full questions (with a maximum of four sub-questions) from each module.	

- Some subjects can choose to have a compulsory question under any one module.
- Each full question will have a sub-question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Books**

1. K.S. Ramegowda, 1972, *Urban and Regional Planning*, Prasaranga, University of Mysore
2. Rangwala, 2015, *Town planning in India*, Charotar Book Distributors, India, 28th Ed.
3. V D Mahajan, *Ancient India*
4. A.E.J. Morries, 1994, *History of Urban Form: Before the Industrial Revolution*, Routledge, New York, 3rd Ed.
5. Frederick Gibberd, 1959, *Town Design*, Praeger

Web links and Video Lectures (e-Resources):

VTU online MOOC Course

<https://online.vtu.ac.in/course-details/Introduction-To-Urban-Planning>

Skill Development Activities Suggested

- Guest Lectures.
- Case Studies

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Analyze the evolution of human settlements from prehistoric to modern times through planners' perspective	L4
CO2	Gain a better understanding of Urban & Regional Planning techniques	L3
CO3	Evaluate utopian concepts and contributions of key urban planners.	L5
CO4	Apply theories of urban planning at national, regional, and local levels.	L5

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
3	Demonstrate creativity in the problem-solving process through professional quality graphic presentations, use of GIS software, and Policy decisions.	PO3
4	Acquire outstanding knowledge & software skills for redesigning, monitoring, and improving Cities and Regions' functioning.	PO4
5	Understanding the diverse needs of values and systems of society and providing Smart, Sustainable, and data-centric solutions.	PO5
6	Demonstrate design and policy solutions that integrate contextual, social, economic, cultural, ethical, and environmental concerns.	PO6
7	Ability to undertake independent/option-based research and exploration of advanced and emerging topics.	PO7
8	Appraise professional standards and ethical responsibilities as a team member/stakeholder.	PO8
9	Acquire outstanding knowledge and understanding of the current trends in Urban Planning.	PO9

Mapping of COs and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓					✓			✓
CO2	✓			✓					
CO3	✓					✓	✓		
CO4	✓				✓	✓			

PLANNING TECHNIQUES			
Course Code	2MTCP104	CIE Marks	50
Teaching Hours/Week (L:S:SDA)	3 hrs (3:0:0)	SEE Marks	50
Total Hours of Pedagogy	39	Total Marks	100
Credits	3	Exam Hours	03
Course Learning objectives: By taking this course Students will be able to: - Understand the significance of Village Planning, with the current proposals for Rural Development Schemes by the Indian Govt. - Understand the concept, classification and delineation of planning regions using the different techniques - Understand the principles of preparation of a district plan, and multi-level planning.			
Module-1			
Introduction to Regional Planning Aims and Objectives and need for regional planning- Concept, Types, and Classification of regions. Delineation of planning regions by various Techniques-Principal component method, Composite index, Ridgeline technique, Gravity potential technique, Boundary girdle method. Regional Planning and Economic Development-Backward regions and Developed regions, Characteristics and reasons for backwardness. Case study of any regional plan, Introduction to regional analysis. Linear Programming, Input and Output Analysis- Growth Model, Core-periphery models. Application of Regional Techniques in District Planning.			
Teaching-Learning Process	Blended learning: Power point presentation to elaborate more on key topics.		
Module-2			
Theories of Regional Development Regional Development Theories-W. Christaller (Central Place theory) Von Thunen (Theory of agricultural location) Losch (General theory of location) A.Weber (Industrial location theory) W. Isard (Theory of location and space economy)			
Teaching-Learning Process	Blended learning: Power point presentation to elaborate more on key topics.		

Module-3	
Levels of Planning Multilevel planning– Needs and methods of multi-level planning in India. Growth-Foci concept, regional planning as a tool to integrate rural and urban areas. District Planning: Integrated approach to district level planning (vertical and horizontal spatial integration); Rural-Urban spatial relationship. District Development Plans– Guidelines for District Planning: Content and context and methodologies	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-4	
Introduction to Village Planning Nature of rural communities - Structure and forms of rural settlements, National planning, and rural development. Rural economy- Planning for the rural economic base, Agriculture, and other primary sectors. Rural Local Governments and Rural Institutions in Development Activities. 73rd Constitution Amendment Act and its impact on rural development. Evaluation of rural development programs of central and state governments like MGNREGA, PMGSY, NBA, PMAY, NRIDP, NRHM, AMRUT, PURA, Bharat Nirman, etc. Planning for rural infrastructure, energy, roads, water supply, sanitation, and rural services–Agro services. Appropriate Technology for rural development like the use of local resources, Rainwater Harvesting, water recharge, soil conservation, and wasteland development. Village Industries and village trade and services.	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-5	
Smart Village Understanding Concept of Smart Village, Issues of Smart Village, Smart Village Performance Benchmark, Smart Village Policy and Mission, Planning and Management of Smart Village- A Case study of smart Village "PUNSARI" along with economics, Financing Smart Villages, Renewable energy in smart village.	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Continuous Internal Evaluation: The Internal Marking shall be done for 100 which will be scaled down to 50, the faculty in charge of the particular course can decide on any change in the structure of the internal examination which is to be conducted on 5th, 10th, and 15th weeks of the academic calendar preferably. The Internals shall be from a choice of written examinations/ Assignments/ Presentations allotted to students.	

Semester End Examination:

- The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
- The question paper will have ten full questions carrying equal marks.
- Each full question is for 20 marks.
- There will be two full questions (with a maximum of four sub-questions) from each module.
- Some subjects can choose to have a compulsory question under any one module.
- Each full question will have a sub-question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Books**

1. R.P.Misra, 1998, *Regional Planning: Concepts, Techniques, and case-studies*, Concept Publishers, New Delhi.
2. Government of Karnataka: *Karnataka Panchayat Raj Act*.
3. Corey Kenneth E., Wilson Mark, 2006, *Urban and Regional Technology Planning*, Knimbus Open eBooks
4. Bisello, Adriano., Vettorato, Daniele., Ludlow, David., Baranzelli, Claudia, 2021, *Smart and Sustainable Planning for Cities and Regions*, Springer
5. Yasar Bahri Ergen, 2018, *An Overview of Urban and Regional Planning*, Knimbus Open eBooks

Web links and Video Lectures (e-Resources):

- The Geoecologist:
<https://www.youtube.com/c/TheGeoecologist>
- IIT Roorkee:
https://www.youtube.com/playlist?list=PLLy_2iUCG87AAaDRVrD02Y1z44OXt5shB

Skill Development Activities Suggested

- Guest Lectures
- Webinars
- Case Studies

Course outcome (Course Skill Set)

At the end of the course the student will be able to :

Sl. No.	Description	Blooms Level
CO1	Understand the aims, objectives, and types of regional planning and their applications.	L3
CO2	Analyze regional development theories and their implications for economic development.	L4
CO3	Evaluate methods and techniques for delineating planning regions and their practical applications.	L5
CO4	Assess the integration of rural and urban areas through district and multi-Level Planning	L5
CO5	Apply concepts and strategies for rural development and smart village planning	L3

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
3	Demonstrate creativity in the problem-solving process through professional quality graphic presentations, use of GIS software, and Policy decisions.	PO3
4	Acquire outstanding knowledge & software skills for redesigning, monitoring, and improving Cities and Regions' functioning.	PO4
5	Understanding the diverse needs of values and systems of society and providing Smart, Sustainable, and data-centric solutions.	PO5
6	Demonstrate design and policy solutions that integrate contextual, social, economic, cultural, ethical, and environmental concerns.	PO6
7	Ability to undertake independent/option-based research and exploration of advanced and emerging topics.	PO7
8	Appraise professional standards and ethical responsibilities as a team member/stakeholder.	PO8
9	Acquire outstanding knowledge and understanding of the current trends in Urban Planning.	PO9

Mapping of COs and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓								✓
CO2	✓				✓				
CO3	✓						✓		
CO4		✓			✓				
CO5		✓			✓	✓			

ENVIRONMENTAL PLANNING			
Course Code	2MTCP105	CIE Marks	50
Teaching Hours/Week (L:S:SDA)	3 hrs (3:0:0)	SEE Marks	50
Total Hours of Pedagogy	39	Total Marks	100
Credits	3	Exam Hours	03
Course Learning objectives: By taking this course students learn: • Understand the significance of Environment and the impact of Urban projects on Environment. • Elucidate the different concepts of sustainable environmental development, SDGs, National & International Policies. • Understand the concept and steps involved in Environmental Planning, Stages, Process, Impact Assessment.			
Module-1			
Introduction Fundamentals of Ecosystem and Environment, Components of Natural and Built Environment- Man’s impact on natural features viz. Atmosphere (climate), -Urban Heat Island; Forests and Landforms. Environmental pollution–types of pollution, air; water; noise, and land–Their source, impact, and abatement. Impact of various human activities on the environment including recreation, tourism, urban waste, and impact on the environment.			
Teaching-Learning Process	<i>Direct method:</i> Lecture supported by conventional method of Blackboard and chalk to introduce the concepts <i>Blended learning:</i> Power point presentation to elaborate more on key topics.		
Module-2			
Global Environmental Concerns UN/ International Conferences/ Conventions regarding environmental protection and conservation like Stockholm Conference (1972), Rio Earth Summit (1992), Kyoto Protocol (1997), Paris Agreement (2015) etc.			
Teaching-Learning Process	<i>Direct method:</i> Lecture supported by conventional method of Blackboard and chalk to introduce the concepts <i>Blended learning:</i> Power point presentation to elaborate more on key topics		
Module-3			
Indian Legislation related to environment Formation of the Ministry of Environment, Forest and Climate Change, India's National Environment Policy in 2006, Commitment to reducing emissions intensity and increasing renewable energy capacity under its Nationally Determined Contributions (NDCs), Various movements, methods, and role of NGOs towards environmental protection			

Teaching-Learning Process	<i>Direct method: Lecture supported by conventional method of Blackboard and chalk to introduce the concepts</i> <i>Blended learning: Power point presentation to elaborate more on key topics</i>
Module-4	
Environmental Impact Assessment (EIA) and environmental planning Principles and methodologies of Environmental Impact Assessment (EIA), Acts, Regulations, and the role of institutions in ensuring effective environmental management. Criteria guiding EIA. Need for Environmental Planning, environmental planning techniques, including methods of data collection, interview techniques, and database utilization for incorporating environmental concerns in planning. Conservation planning: Resource protection and conservation techniques.	
Teaching-Learning Process	<i>Direct method: Lecture supported by conventional method of Blackboard and chalk to introduce the concepts</i> <i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-5	
Emerging Concepts Emerging Concepts: smart growth, clustered cities, ecological footprints, green development, sustainable cities and inclusive cities for sustainable livelihood; Environment and poverty links; Environment and Economy interaction: Kuznets curve, Green GDP, Carbon Trading, carbon sequencing, environmental accounting, and Green Budgeting.	
Teaching-Learning Process	<i>Direct method: Lecture supported by conventional method of Blackboard and chalk to introduce the concepts</i> <i>Blended learning: Power point presentation to elaborate more on key topics.</i>

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

Continuous Internal Evaluation:

The Internal Marking shall be done for 100 which will be scaled down to 50, the faculty in charge of the particular course can decide on any change in the structure of the internal examination which is to be conducted on 5th, 10th, and 15th weeks of the academic calendar preferably. The Internals shall be from a choice of written examinations/ Assignments/ Presentations allotted to students.

Semester End Examination:

- The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50.
- The question paper will have ten full questions carrying equal marks.

- Each full question is for 20 marks.
- There will be two full questions (with a maximum of four sub-questions) from each module.
- Some subjects can choose to have a compulsory question under any one module.
- Each full question will have a sub-question covering all the topics under a module.
- The students will have to answer five full questions, selecting one full question from each module

Suggested Learning Resources:**Books**

1. Anil Varma, *Tourism Growth : Impact and Experiences*
2. Subir Ghosh, *Rural Tourism*
3. Prabha Shastri Ranade, *Ecotourism : Perspectives and Experience*
4. Prabha Shastri Ranade, *Climate Change: Impact and Mitigation*
5. Beniamino Murgante, Giuseppe Borruso, Alessandra Lapucci, *Geocomputation, Sustainability and Environmental Planning*, Springer
6. Appiah-Opoku Seth, 2012, *Environmental Land Use Planning*, Knimbus Open eBooks

Web links and Video Lectures (e-Resources):

- VTU Online MOOC Course
<https://online.vtu.ac.in/course-details/Environment-And-Development>
https://youtube.com/playlist?list=PLLy_2iUCG87CkrNdXME16BCptwGx1fl67&si=i0rHAhRL1yd eJeqd

Skill Development Activities Suggested

- Guest Lecture from expert.
- Attending webinars.

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Analyze the human impacts on environments and strategies for mitigation	L4
CO2	Evaluate global environmental concerns from international agreements	L3
CO3	Apply Environmental Impact Assessment (EIA) principles for effective development management.	L5
CO4	Develop Strategies integrating environmental aspects into urban planning	L5
CO5	Examine the relationship between environment, economy, and society	L6

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
3	Demonstrate creativity in the problem-solving process through professional quality graphic presentations, use of GIS software, and Policy decisions.	PO3
4	Acquire outstanding knowledge & software skills for redesigning, monitoring, and improving Cities and Regions' functioning.	PO4
5	Understanding the diverse needs of values and systems of society and providing Smart, Sustainable, and data-centric solutions.	PO5
6	Demonstrate design and policy solutions that integrate contextual, social, economic, cultural, ethical, and environmental concerns.	PO6
7	Ability to undertake independent/option-based research and exploration of advanced and emerging topics.	PO7
8	Appraise professional standards and ethical responsibilities as a team member/stakeholder.	PO8
9	Acquire outstanding knowledge and understanding of the current trends in Urban Planning.	PO9

Mapping of Cos and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓					✓			
CO2	✓								✓
CO3	✓			✓					
CO4	✓				✓	✓			
CO5		✓			✓	✓			

DEMOGRAPHY AND STATISTICS			
Course Code	2MTCP106	CIE Marks	50
Teaching Hours/Week (L:S:SDA)	3 hrs (3:0:0)	SEE Marks	50
Total Hours of Pedagogy	30	Total Marks	100
Credits	3	Exam Hours	03
Course Learning objectives: By taking this course students will be able to: • Understand the operational layers of the City’s infrastructure. • Understand the significance, operations, and impact of different types of infrastructures on City functionality. • Understand the current technologies available for operations and maintenance of these city infrastructures in the Smart domain.			
Module-1			
Demography Sources of demographic data in India, Settlement type, growth pattern, and structure: urban settlement analysis, Concentration: spatial, vertical and size, peri-urban sprawl, economic base; Rural Settlements – Size, occurrence, and character, transformation. Surveys and types of surveys. Population Census in India- Census Operation- Census Questionnaires and Schedules.			
Teaching-Learning Process	<i>Direct method:</i> Lecture supported by conventional method of Blackboard and chalk to introduce the concepts <i>Blended learning:</i> Power point presentation to elaborate more on key topics.		
Module-2			
Population structure and composition Age, sex, gender, marital status, caste, religion, literacy level, etc.; Age - sex ratio, structure, pyramid; dependency ratio; occupational structure; Fertility; mortality, migration analysis, natural growth of population, migration and its implications in planning;			
Teaching-Learning Process	<i>Direct method:</i> Lecture supported by conventional method of Blackboard and chalk to introduce the concepts <i>Blended learning:</i> Power point presentation to elaborate more on key topics.		
Module-3			
Statistical Analysis Population and samples variables, simple statistical models, Measures of Central Tendency, Measures of Dispersion, Measures of the shape of the distribution of population, Chi-Square test.			
Population Projection techniques Population Projection techniques – arithmetic, geometric and logarithmic projections			

Teaching-Learning Process	<i>Direct method: Lecture supported by conventional method of Blackboard and chalk to introduce the concepts</i> <i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-4	
Population and Development Concepts of Development and its measures: Human Development Index (HDI), Physical Quality of Life Index (PQLI), Gender Development Index (GDI), Concepts and Measures of Poverty, Human Poverty Index (HPI)	
Teaching-Learning Process	<i>Direct method: Lecture supported by conventional method of Blackboard and chalk to introduce the concepts</i> <i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Module-5	
Population Policies and Programmes Evolution and Development of Population, Health and related Policies-National Population Policy 2000, National Health Policy 2017. Population and Policies on special groups, Ageing and Disabilities. Role of NITI Aayog in Health and Population related policies and programme. Population, Health and related Policies and Programmes at State & National Level	
Teaching-Learning Process	<i>Blended learning: Power point presentation to elaborate more on key topics.</i>
Assessment Details (both CIE and SEE) The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 50% of the maximum marks. Minimum passing marks in SEE is 40% of the maximum marks of SEE. A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 50% (50 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together. Continuous Internal Evaluation: The Internal Marking shall be done for 100 which will be scaled down to 50, the faculty in charge of the particular course can decide on any change in the structure of the internal examination which is to be conducted on 5th, 10th, and 15th weeks of the academic calendar preferably. The Internals shall be from a choice of written examinations/ Assignments/ Presentations allotted to students. Semester End Examination: • The SEE question paper will be set for 100 marks and the marks scored will be proportionately reduced to 50. • The question paper will have ten full questions carrying equal marks. • Each full question is for 20 marks. • There will be two full questions (with a maximum of four sub-questions) from each module. • Some subjects can choose to have a compulsory question under any one module. • Each full question will have a sub-question covering all the topics under a module. • The students will have to answer five full questions, selecting one full question from each module	

Suggested Learning Resources:**Books**

1. Bhende Asha A Kanitkar Tara , *Principles of Population Studies*
2. Pathak K B Ram F , *Techniques of demographic analysis*
3. T Veerarajan, *Probability, Statistics and Random Processes*
4. Papoulis Pillai, *Probability & Random Variables & Stochastic Processes 4ED*
5. Azmal Hussain , *Demographic Transition : A Global Perspective*
6. *Demography and the Economy*, **National Bureau of Economic Research.**

Web links and Video Lectures (e-Resources):

<https://www.youtube.com/watch?v=vgWY2lwgmAA>
<https://www.youtube.com/watch?v=oqhYIL5fHR8>
<https://www.youtube.com/watch?v=ZJphOd5V3oU>

Skill Development Activities Suggested

- Case studies
- Guest lectures

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Understand the fundamentals and roles of economic sectors in urban development.	L3
CO2	Evaluate key economic indicators and their impact on urbanization and quality of life.	L5
CO3	Assess contemporary urban challenges and opportunities, including sustainable and resilient development.	L5
CO4	Apply inclusive planning principles to address diverse population needs in urban development.	L3

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
3	Demonstrate creativity in the problem-solving process through professional quality graphic presentations, use of GIS software, and Policy decisions.	PO3
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6	Demonstrate design and policy solutions that integrate contextual, social, economic, cultural, ethical, and environmental concerns.	PO6
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8	Appraise professional standards and ethical responsibilities as a team member/stakeholder.	PO8
9	Acquire outstanding knowledge and understanding of the current trends in Urban Planning.	PO9

Mapping of COs and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓								
CO2	✓			✓					
CO3					✓	✓			
CO4		✓			✓	✓			

RESEARCH METHODOLOGY FOR PLANNING & ARCHITECTURAL STUDIES			
Course Code	MRM 107	CIE Marks	
Teaching Hours/Week (L:S:SDA)		SEE Marks	
Total Hours of Pedagogy		Total Marks	
Credits	PP	Exam Hours	
Course Learning objectives: By taking this course students will be able to: - Understand the significance and process of conducting research, in particular with the practical application in the Planning discipline - Provide them with the process outline assisting them in their Dissertation. - Elucidate the significance of appropriate data collection and analysis methods applicable for solving city problems.			
The student has to take this course compulsory before completion of the minimum duration of the program (Two years), however, this course will not be considered for vertical progression. Following are the websites from which the courses can be taken from – - Research Methodology and IPR - https://onlinecourses.swayam2.ac.in/ntr24_ed08/preview - Introduction to research - https://www.online.vtu.ac.in/course-details/introduction-to-research-research-methodology - Research Methodology for Planning and Architectural Studies - https://onlinecourses.nptel.ac.in/noc24_ar07/preview - Research methodology - https://onlinecourses.nptel.ac.in/noc23_ge36/preview			
Assessment Details Assessment for this course is done by the course conducting platform and it is compulsory for all the students to comply for the same. Only the course completion certificate is to be submitted to the department.			
Suggested Learning Resources: Books - Ranjit Kumar, 2011, <i>Research Methodology a step-by-step guide for beginners</i> (For the topic Reviewing the literature under module 2) SAGE Publications Ltd. 3rd Edition. - C.R. Kothari, Gaurav Garg, <i>Research Methodology: Methods and Techniques</i> New Age International 4th Edition, <i>Intellectual Property Rights, Law, and Practice</i>, The Institute of Company Secretaries of India, Statutory Body Under an Act of Parliament, September 2013			
Web links and Video Lectures (e-Resources): - NPTEL-IOC IITM https://www.youtube.com/watch?v=E2gGF1rburw - IIT Roorkee: https://www.youtube.com/watch?v=2y-6GnKDUHg			
Skill Development Activities Suggested - Guest Lecture from industry experts. - Attending webinars.			

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

Sl. No.	Description	Blooms Level
CO1	Understand the meaning of research, its objectives, and its types.	L1
CO2	Frame a research methodology for planning related issues.	L4
CO3	Explain the process of literature review, and improving research methodology	L1
CO4	Interpret the necessary data to develop a conceptual framework and theoretical framework	L2
CO5	Explain about conducting surveys, data collection, and choosing appropriate methods of data collection	L1
CO6	Use hypothesis techniques to extrapolate data from samples.	L3
CO7	Interpret the data and write research reports.	L2

Program Outcome of M. Plan (TCP) program:

Sl. No.	Description	POs
1	Acquire outstanding fundamental knowledge in the field of Urban Planning.	PO1
2	Encompass the ability to work in collaboration with interdisciplinary teams and stakeholders.	PO2
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Mapping of COs and POs:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9
CO1	✓								
CO2	✓						✓		
CO3	✓						✓		
CO4	✓						✓		
CO5	✓						✓		
CO6	✓						✓		
CO7	✓		✓	✓			✓		