DEPARTMENT OF PLANNING
ANNA UNIVERSITY, CHENNAI

Vision:
We envision our students get imparted planning education, which contributes ability to unlock their full potential to enable them to reach the pinnacle of the Profession.

Mission:
1. Promote the department into a Centre of Excellence through interdisciplinary associations and innovative researches.
2. Strive to instill professional ethics and excellence through effective industry-institute collaboration.
3. Bridge the gap between industry expectations and students’ competencies through appropriate training.
4. Impart soft skills such as communication, presentation, group discussion and decision taking.
5. Encourage, motivate, and inspire students to have positive attitude and to aim high to scale greater heights in the profession.
1. **PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):**

   **PEO1**  
   Become an urban and regional planner with knowledge and understanding of the socio-economic, cultural, physical, environmental, political, legal and management aspects of urban and rural settlements.

   **PEO2**  
   Become part of urban and regional planning authorities, local governments, housing development agencies or other related public agencies.

   **PEO3**  
   Become a professional consultant who can independently/jointly offer support in planning and executing the various activities of the planning process.

   **PEO4**  
   Become a researcher to critically investigate planning concepts, theories, and techniques to advocate newer theories, innovative concepts and technology driven analytical tools for better management of human settlements.

   **PEO5**  
   Become an activist to influence policies and strategies of the government at various levels for a sustainable development and enhancement in quality of life of the citizens.

2. **PROGRAMME OUTCOMES (POs):**

   After going through four years of study, M.Plan Graduates will exhibit ability to:

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<th>No.</th>
<th>Graduate Attribute</th>
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<td>PO 1</td>
<td>Planning knowledge</td>
<td>An ability to apply the professional knowledge to solve the complex planning problems.</td>
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<td>PO 2</td>
<td>Problem Analysis</td>
<td>An ability to independently carry out research/investigation and development work to solve practical problems.</td>
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<td>PO 3</td>
<td>Design/development of solutions</td>
<td>An ability to demonstrate a degree of mastery over the understanding of the functioning of human settlements.</td>
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<td>PO 4</td>
<td>Knowledge of Urban and Regional Planning discipline</td>
<td>Understand, analyze, plan and implement the in-depth knowledge of urban and regional planning.</td>
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<tr>
<td>PO 5</td>
<td>Critical analyses of spatial planning</td>
<td>Critically analyze complex spatial planning problems and make innovative advances in a theoretical, practical and policy context.</td>
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<td>PO 6</td>
<td>Conceptualization and evaluation of planning solutions</td>
<td>Conceptualize and solve spatial planning problems, evaluate potential solutions.</td>
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## PEO / PO Mapping:

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3- High 2-Moderate 1-Low
### Mapping of Course Outcome and Programme Outcome: Professional Elective Courses

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### SEMESTER I

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### SEMESTER II

(Prerequisite: Pass in Area Planning Studio)

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(Prerequisite: Pass in Urban Planning Studio)

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**Internship Training of 4 weeks full time during the vacation in an Organization, which is engaged in planning activities and approved by the Department**

### SEMESTER IV
(Prerequisite: Pass in Regional Planning Studio & Thesis Phase I)

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**TOTAL NO. OF CREDITS: 78**

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**PROFESSIONAL ELECTIVE COURSES (PEC)**

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*Credits for 2 Professional Electives to be chosen*

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

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OBJECTIVES

- To introduce planning discipline its role, importance and scope.
- To familiarize students with basic planning terminology/vocabulary/though.
- To gain familiarity with the various steps of the planning process.
- To introduce interdisciplinary character of physical planning.
- To give overview of various level of plans and its practice.

UNIT I  PLANNING AS A DISCIPLINE  9
Introduction to planning discipline - Defining planning as a discipline, it's multidisciplinary nature, role of a planner - Definitions and basis of planning – urban and rural settlement – classification of towns – Urbanization trend - Fields of planning - Urban, regional, environmental, transport and infrastructure – role of development authorities - goals and objectives of planning.

UNIT II  HIERARCHY OF PLANS  9

UNIT III  PLANNING PRINCIPLES  9

UNIT IV  PLANNING PROCESS AND SYSTEM  9
Planning system in India - Institutional mechanism, Plan making process – Delineation of planning area, Assessment of developmental issues, Plan period, Formulation of aim and objectives, Projection of requirements, Development proposals and phasing - Public Participation - Constraints in plan preparation and implementation - Legal, Financial, Human resource and Institutional - Planning Process in the formulation and implementation of Urban and Regional Plans.

UNIT V  FUTURISTIC PLANNING  9
Recent and contemporary contributions to the changing planning paradigms; Planning for future and in future - vision development, strategizing, Implementation – Land Value Capture techniques - Land Pooling concept, Transfer of Development Right, Accommodation Reservation - Swiss Challenge Model, etc.

OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Ability to understand the influence of planning as a profession and its correlation with other disciplines.
CO2 Familiarize with the urban planning issues, objectives, framework, process and components.
CO3  Exposes the students about planning process and justify the rationale of spatial planning.
CO4  Gain familiarity with a broad range of participatory methods and understand the significance of inclusive approach.
CO5  Ability to distinguish the scope and level of planning.
CO6  Appreciate the intervention of planning principles and to draw the spatial planning framework.

Text Books

REFERENCES

CO-PO Mapping

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H-High M-Moderate L-Low

TP3102  PLANNING HISTORY AND THEORY

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OBJECTIVES

- To have knowledge and ability to position current planning ideas and theories in critical and historical context.
- To develop an understanding of key ideas, authors and texts in the history of urban planning.
To discuss and critique different theoretical approaches to planning and the assumptions and beliefs that underpin each of them.

To review the implications of these different theoretical approaches for planning practice.

To communicate your understanding of the different approaches to planning projects.

UNIT I  EVOLUTION OF URBAN PLANNING  9
The significance of the study of historical processes - Interpreting history for planning purposes - overview of civilization - Concept of time as a dimension of built form – Criteria of location and development of towns in history – process of city transformation - Cities in effects of Industrial Revolution – growth and legacy of Imperial cities - Significance of rise and fall of great cities.

UNIT II  TRANSFORMATION OF URBAN FORMS  9
Evolution of cities in South Asia - Cities from Ancient – Medival Towns – Great cities of Mughal Empire – Colonial Cities - dominance of modernism - Planned cities post-modernism - Examine the major cities from the ancient world to the present day – Urban reform – Case Studies.

UNIT III  THEORIES OF URBAN STRUCTURE  9
Overview of planning theory – Types – Importance – Shifts in theory with time and context - Theories of urban structure including – The Theory of the City – Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory, Theories of Ekistics, CA Perry's: Neighborhood Unit and other latest theories.

UNIT IV  THEORIES: AS A TOOL OF URBAN DEVELOPMENT  9

UNIT V  EMERGING PLANNING CONCEPTS  9
Concept, advantages and limitations on planning practices - Paradigms of planning practice by John Muller, Kuhn and others - various issues in practices – smart cities – eco-cities – sustainable cities – livable cities – other concepts - Critical appraisal of City and Metropolitan Planning in India through Case Studies - Uncertainty in Planning.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Familiarize the evolution of contemporary planning by comparing previous movements and the origins of planning concepts, social reform, policies, and politics.
CO2 Identify key global shifts with respect the cultural, economic and political aspects across different cities.
CO3 Explain and appreciate the importance of theoretical approach in planning.
CO4 Analyze a planning problem and its solution and relate this to planning theory.
CO5 Demonstrate the planning theories related to current planning trend.
CO6 Critically analyze the variety of approaches that have driven and characterized planning activity over time.

TEXT BOOKS
REFERENCES

CO-PO Mapping

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TP3103 SOCIO-ECONOMIC AND POLITICAL DIMENSIONS IN PLANNING

OBJECTIVES
- To understand the way economic processes such as de-industrialization, segregation, and sub-urbanization have interacted to create areas of concentrated urban poverty.
- To examine the consequences of social life in reflectance of economic activities.
- To explore the role of built environment in shaping social interactions, and understand how space is related to mechanisms of both formal and informal social control.
- To introduce tools and methods of economic analysis to trace area of demand and supply.
- To familiarize students to use the concepts to which they are introduced to facilitate analysis of the functioning of the economy.

UNIT I SOCIO-SPATIAL ASPECTS

Sociological concepts and social groups - Socio-spatial structures and Institutions related to urban and rural communities - Human and urban geography of urban areas – Human interaction and spatial form of cites – urban structure and urbanization – city sprawl – Sub-urbanism and Gentrification, Rural - Urban continuum - Social and economic Impacts of urban growth and expansion - Case Studies.
UNIT II ECONOMIC BASE


UNIT III THEORY OF DEMAND AND SUPPLY

Definition of need, Demand and supply- Law of demand and supply- Theory of demand and utility-elasticity of demand and supply – its use in Planning- Application of demand and supply in relation to housing and infrastructure services- perfect and imperfect market type – market demand and supply- pricing under different market conditions and the market mechanism, Application of theory in provision of urban services.

UNIT IV FORMS OF COMPETITION


UNIT V URBAN POLITICS

Classical and modern notions of politics; Links between politics and planning; Implication of politics on governance and plan making process – case studies.

TOTAL : 45 PERIODS

COURSE OUTCOMES

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

CO1 Understand and predict how supply and demand concept will affect prices in market economies.

CO2 Interpret, apply and relate economic principles to current economic issues.

CO3 Compute different measures of economic activity such as the national income accounts, inflation, and unemployment, and evaluate the shortcomings of traditional economic measures.

CO4 Think and analyze the spatial planning attributes from the social and economic perspective.

CO5 Facilitate graduates towards sensitize the importance of correlation of socio-economic aspects.

CO6 Recognize market failure and the role of government in dealing with those failures.

TEXT BOOKS


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TP3104  HOUSING AND COMMUNITY PLANNING

OBJECTIVES

- To learn about significance and need for housing.
- To learn about the planning norm and standards about the housing.
- To know about the different policies related to housing.
- To learn about the various concepts and issues in housing market.
- To know the importance of community involvement in housing.

UNIT I  SIGNIFICANCE AND NEED OF HOUSING DEVELOPMENT

Urbanization trend in global and national level, Significance of Housing; Classification of Housing Typology; housing in different climatic region, housing Situation in India; Housing Need and Demand Assessment and Its Forecasting.

UNIT II  URBANISATION AND HOUSING

Impact of industrialization and urbanization on housing and built environment, Housing design, standards, layout preparation, sanction and approval and concerned agencies, green house and eco-friendly housing, Socio-economic and spatial aspects of housing, Planning norms and standards, Homelessness and Indian Society.

UNIT III  POLICY AND PUBLIC INTERVENTION IN HOUSING

National and State Housing Policy; Changes in Approaches to Housing Interventions; Legal and Institutional Framework for Housing in India; Housing Strategy for a City - Housing Action Plan for a City, National Urban Rental Housing Policy.

UNIT IV  HOUSING APPROACHES

Affordable Housing: Concept, Policy, Emerging Thoughts; Slums and Informal Housing; Informal Housing Typologies; Parameters and Approaches to Categorize Informal Housing for Interventions; Current Policies and Schemes for Improving Informal Housing; Real Estate Scenario; Relevant Case Studies of Different Categories of Housing.
UNIT V COMMUNITY DEVELOPMENT

Definition, Scope, Objectives and socio-political context of community development, Role of community development in the context of enabling shelter strategies of government, Concept of community, identification of characteristics, resources a problem of community, – Community participation, motivation for self-help and participation in housing projects, Role of NGO, CBO and other organization role in facilitating housing projects, problem faced by communities.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Ability to understand the urbanization and its importance to housing.
CO2 Enumerate the different housing needs and their design criteria.
CO3 Familiarize with the existing and past policies related to housing.
CO4 Understand about various housing schemes and their implication.
CO5 Familiarize about the role of community involvement in housing sectors.
CO6 Ability to understand the problems related to community involvement in housing sector.

TEXT BOOKS

REFERENCES
5. Dr. Rajashree J. Jawale (2023), "Right to Housing in India", Notion Press.

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H-High M-Moderate L-Low
OBJECTIVES

- To acquire proficiency in statistical techniques.
- To conduct empirical studies by employing statistical software.
- To review a range of data collection and analysis methods useful in community and organizational environments.
- To collect and review artifacts, observe places, ask questions, engage with diverse groups, and using visual techniques.
- To examine how qualitative approaches can be used in planning practice and research.

UNIT I  INTRODUCTION TO STATISTICAL METHODS  10
Methods of Data Collection - Classification and Tabulation of Data – Qualitative and Quantitative data- content analysis and meta-analysis - grounded theory - Measures of Central Tendencies and Dispersion – Questionnaire Design – Types of Sampling – Sampling Size – Sampling Non-sampling Error- field study in data collection and analysis- introduction to software.

UNIT II  STATISTICAL INFERENCE  20

UNIT III  DEMOGRAPHIC ANALYSIS  10

UNIT IV  APPLICATION PLANNING TECHNIQUES & TOOLS  10
Analytical methods - linear programming, threshold analysis, simulation, rank size rule, scalogram, sociogram, cluster and factor analysis, delineation techniques, SWOT analysis; demographic analysis; location models, gravity models, Delphi, Trade Off Game, Simulation Model.

UNIT V  DATA VISUALIZATION IN PLANNING  25
Introduction To Mapping And Data Visualization Spatial And Non-Spatial Data - Introduction To Functional Visualization Of Various Attributes Of Buildings- Data Visualization Platforms USING Softwares.

TOTAL : 75 PERIODS

COURSE OUTCOMES

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

CO1 Identify the range of qualitative methods commonly used in planning practice globally, including methods planners use themselves and those used in research planners commission and/or read.

CO2 Use different qualitative data collection and analytical approaches.

CO3 Comprehend the strengths and limitations of qualitative approaches and how they can be combined with other methods (mixed-method approaches).

CO4 Understand how qualitative methods can aid more complex and systematic engagement with diverse urban places and populations.

CO5 Critically assess qualitative research designs and outputs.

CO6 Appreciate ethical issues in qualitative research and their relationship to urban planning ethics more generally.

TEXT BOOKS


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H-High M-Moderate L-Low

TP3112 GIS MODELING IN URBAN AND REGIONAL PLANNING

OBJECTIVES
- To understand the necessity of spatial data sets in for planning.
- To understand the use of Remote sensing in Planning.
- To study GIS Software Packages and Advanced Concepts of GIS.
- To apply the applications of GIS Spatial Planning at various level.
- To study of various land use Modeling techniques in GIS.

UNIT I SPATIAL AND NON-SPATIAL
UNIT II DATA INPUT

UNIT III RASTER AND VECTOR DATA ANALYSIS

UNIT IV SPATIAL ANALYSIS USING GIS
Introduction and necessity of Analysis and geoprocessing, spatial analysis , buffering, hotspot analysis, Image Analysis, 3D Analysis, Map and report generation, Mobile GIS, Field survey using Mobile application.

UNIT V URBAN LAND USE MODELING AND WEB APPLICATION
Introduction to 3D Modeling, need for model, Urban land use modeling, Transitional potential modeling and land allocation modeling, Introduction to Bhuvan and TNGIS, usage of online portal for analysis, open-source map layers for analysis.

TOTAL: 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Identify various data requirements for a planning Problems.
CO2 Comprehensive understanding of usage of GIS techniques in planning.
CO3 Make spatial analysis for critical decision making with help of GIS.
CO4 Ability to do 3d visualisation and stimulation using GIS software.
CO5 Use the GIS and Remote sensing techniques in various planning applications.
CO6 Study the techniques in stimulation of urban land use using GIS. and web application.

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TP3121

AREA PLANNING STUDIO  L  T  P/S  C
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OBJECTIVES
- To understand the physical, social and economic aspect of the planning area.
- To understand the various surveys relating to preparation of plans for Urban and Rural Settlements.
- To appreciate an area and space perception.
- To understand the intersectionality of race, class, gender and the ways in which planning aspects mediate inequalities and drive the transformation of underdeveloped areas.
- To define concrete measures to support desired change and to enhance possible potentials through qualitative and quantitative assessment.

CONTENT
A) RURAL PLANNING AND DEVELOPMENT
Preparation of Rural Development Plan for the identified villages by appreciating its area and perception of spaces – Studying elements, Structure of village, Structure of administration, Spatial aspects and its transformation, livelihood of rural communities, Current Rural Improvement Programmes and required planning interventions - Household Survey and Identification of problems.

B) PLANNING AT RESIDENTIAL LAYOUT LEVEL
Preparation of residential layout involves, Review of literature - Existing act and byelaws - Design criteria’s - Study of existing layouts - Site analysis - Alternative designs - Finalization of designs, Cost of the projects and model. Study area preferably the transformative rural area/areas where new developments are coming up in the close urban.

C) STUDY ON URBAN LAND USE
Land use Zones – Activities that are permissible in each zone – Their functional and spatial characteristics – Land and building use survey - Issues related to functions and spaces - Understanding the linkage between different aspects of socio-economic life in relation to the land use in the cities.

TOTAL : 150 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Ability to understand the spatial influencing elements at various context.
CO2 Interpret, apply and relate economic principles to current economic issues.
CO3 Identifying strategies, mechanisms and interventions that help build quality environment that are socially and economically diverse.
CO4 Think and analyze the spatial planning attributes from the social and economic perspective.
CO5 Improve conceptual understanding of spatial transformation and its relevance with positive development.
CO6 Concentrates on the high-end capabilities of documenting and analyzing the urban land use.

TEXT BOOKS

REFERENCES

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TP3201 PLANNING FOR REGIONS

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- To understand various aspects and dimensions of large and growing cities.
- To understand the processes of planning and development of metropolitan cities and regions along with comprehending relevant development plans.
- To understand the processes leading to the peripheralization of metropolitan cities.
- To understand the concept of regional planning and analytical tools for regional analysis.
- To develop knowledge in theories of regional development and their relevance in present context.
UNIT I  METROPOLITAN CITIES, AGGLOMERATION AND REGIONS  9
Defining cities, metropolitan cities, mega cities - metropolitan agglomerations - conurbations, and metropolitan regions - Physical, economic and political structures of metropolitan regions; and Globalisation and extended metropolitan region - desakota model, and territoriality of rural-urban interactions.

UNIT II  CONCEPTS AND REGIONAL DYNAMICS  9

UNIT III  REGIONAL THEORIES AND PRINCIPLES  9

UNIT IV  TOOLS AND TECHNIQUES  9

UNIT V  REGIONS IN INDIA AND ITS PLANNING  9
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 - Role of 73 and 74 CAA in regional plan preparation and implementation - Futures perspectives and methods, Technological advancement and emerging future regions.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:  
CO1  Knowledge on the need for Planning at various levels & especially the thrust and focus of regional planning.  
CO2  Familiar with the contents, approach and methodology of preparation of Regional Plans.  
CO3  Learn important concepts & techniques in Regional Planning and to apply various methods and techniques.  
CO4  Analyse the nature, form and planning of metropolitan cities and regions.  
CO5  Obtain the skills in understanding a region, its dynamics, and planning complexities.  
CO6  Knowledge on typology of regions, its inter and intra linkages with other levels, paradigm shift in the definition and scale of regions.

TEXT BOOKS
2. Rengasamy, S.(2009), “Types of Regions and Regionalization of India”, Regional planning part II. UNCRD.  

REFERENCES

### CO-PO Mapping

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### TP3202 PLANNING LEGISLATION AND PROFESSIONAL PRACTICE

**OBJECTIVES**

- To understand the relevance of constitution and legislation in relation to spatial planning.
- To experience implications of the existing legislations relating to planning and its importance and shortcomings.
- To expose students to problems and prospects of urban and regional planning in terms of professional practice.
- To make aware of the importance of planning laws, legislations, acts, regulations and professional practices in Planning.
- To familiarize the students on the concept of development and highlight the importance of regulated physical development.

### UNIT I CONCEPT AND THE RELEVANCE OF THE CONSTITUTION AND PLANNING LEGISLATION

Constitution and its relevance to Planning – Concept of the Planning Law - Historical evolution of Planning Law in India and in relation with the United Kingdom – Planning Legislation as a positive tool in preparation and implementation of urban and regional plans - benefits of statutory backing for planning schemes.

### UNIT II TOWN AND COUNTRY PLANNING LEGISLATIONS AND LAWS GOVERNING LOCAL BODIES

UNIT III LAWS INCIDENTAL TO PLANNING AND THEIR IMPLICATIONS 10


UNIT IV LAND DEVELOPMENT REGULATIONS AND PLANNING NORMS 10

Tamil Nadu Combined Development and Building Rules, 2019 - Regulations relating to development of integrated townships, Special economic zones, export processing zones, and IT Parks – tools to control: zoning, sub-division regulations.

UNIT V PROFESSIONAL PRACTICE, CODE OF CONDUCT AND INSTITUTIONS 6

Multiple tasks of Planners in the Planning and Development Process of cities and regions in public and private sectors – Expression of interests, Terms of Reference for different practice and charges - career options and prospects – Professional ethics and code of conduct – Role of Professional Institutions at the National and international level in the promotion of the Profession.

TOTAL : 45 PERIODS

COURSE OUTCOMES

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

CO1 Knowledge acquired in various Acts/Laws relating to spatial planning.

CO2 Orientation towards the significance of planning rules and regulations would help students to deal urban and regional planning issues within framework of human rights and environmental protection.

CO3 Prepare frameworks and mechanisms related to land-based development.

CO4 Apply statutory provisions for undertaking development projects.

CO5 Gather requisite capabilities to scrutinize the land and building development proposals initiated by the public and private.

CO6 Apply legal concepts towards addressing urban development.

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TP3203

ENVIRONMENTAL PLANNING

OBJECTIVES

- To impart knowledge of environmental concerns across scales and develop competence 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 expose students to problems and prospects of urban and regional planning in terms of Environment.
- To make aware of the importance of environmental planning laws, legislations, acts, regulations in Planning.
- To develop sensitivity towards addressing quality of life and sustainable development goals in planning process.

UNIT I

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. Components of environment – Classification of environmental resources - Purpose and objectives in environmental protection, planning and management – Consequence of development over urban and rural settlements.

UNIT II

ENVIRONMENTAL MANAGEMENT AND STANDARDS

Institutional and legal support in management of environment – Environmental policies, and protocols - Global environmental initiatives - Environmental Indicators - Concepts and measures in environmental standards.

UNIT III

ENVIRONMENTAL IMPACT ASSESSMENT

Overview of environmental impact assessment practice in India - Types, conceptual approach and phases of EIA – Impact identification methodologies – Prediction and assessment of social, cultural and economic environments.

UNIT IV

ENVIRONMENTAL DECISION MAKING

Generation and evaluation of alternatives – Decision methods – Mitigation and environmental management plan – Public participation in the process of environmental decision-making process.

UNIT V

ENVIRONMENTAL APPROACH IN PLANNING

Environmental concepts – Sustainability and environmental carrying capacity – Environmental strategies in land use, transportation, infrastructure planning and management - Legislative requirements, public awareness and community participation – Environmental management options.

TOTAL: 45 PERIODS
**COURSE OUTCOMES**

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

**CO1** Address the various facets of environmental planning impact assessment studies, eco-cities development, environmental improvement.

**CO2** Analyze spatial planning and to take cognizance of advanced techniques and tools that are now available for predicting environmental impacts.

**CO3** Discuss the evolution of the subject, relevance and application as per the latest development in the world.

**CO4** Demonstrate extensive and systematic knowledge of Environmental Planning.

**CO5** Ability to demonstrate comprehensive understanding of the environment, environmental processes, theories and ethics.

**CO6** Ability to recognize and describe how about resource management and sustainability.

**TEXT BOOKS**


**REFERENCES**

1. Madu C.N (2007),"Environmental Planning and Management", Imperial College Press, (Chapters 2, 3, 4, 6, 7, 8, 10).

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H-High M-Moderate L-Low

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OBJECTIVES

- To impart knowledge in requirements of infrastructure facilities in a settlement.
- To enable students to understand necessity of planning for provision of Water supply, sewerage and storm water drain in a Settlement.
- To enable students to understand necessity and ways of management of solid waste in a settlement.
- To enable students to understand necessity and standards for provision of electrical and social infrastructure facilities in a settlement.
- To understand about the requirement of regional level facilities.

UNIT I
INTRODUCTION
Obligatory and discretionary services, infrastructure requirement for an urban area, policy and schemes related to infrastructure provision and maintenance, Standards for provision of physical and social infrastructure services, Recommendations of Rakesh Mohan Committee, Financing Urban Infrastructure.

UNIT II
PLANNING FOR WATER SUPPLY
Planning for water supply system; Water demand assessment in urban and rural area, Source and quality of water, planning for treatment, distribution system and storage system, quality standards, water audit, 24/7 water supply.

UNIT III
PLANNING FOR SEWERAGE AND STORM WATER DRAINS
Planning for Sewerage system in urban area, demand assessment, planning for sewer network, pumping stations, treatment system, ecological sanitation, DEWATS, Planning for storm water drainage, natural and artificial drains, intensity of rainfall and runoff, factor to be considered in planning of storm water drain, rainwater harvesting.

UNIT IV
PLANNING FOR SOLID WASTE MANAGEMENT
Planning for solid waste management; Types of solid waste- organic & inorganic; Solid waste generation; Methods of collection of solid waste; Methods of treatment and disposal of solid waste composting, incineration, landfills and biogas plants, bio mining, micro composting. Public private partnership in Waste management.

UNIT V
PLANNING FOR ELECTRICAL AND SOCIAL INFRASTRUCTURE
Planning for Electrical and Other Networks: Planning of electrical distribution network, Network of high tension and low-tension lines, electrical substations, Norms and standards of electrical supply and distribution systems, Planning for Social infrastructure facilities, Health care, Education, other services hierarchy facilities, Norms and standards for social infrastructure facilities at National level and at Local level.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Provide students an understanding of the infrastructure network.
CO2 Understand about the policy, schemes, standards and responsibility of the various agencies in provision of infrastructure.
CO3 Able to plan for facilities like water supply, sewerage, and storm water drains.
CO4 Understand the process in planning for solid waste management in a settlement.
CO5 Understand the process in planning for electricity and social infrastructure facilities in a settlement.
CO6 Identify and propose the requirement of regional level facilities in a region.

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TP3211 TRAFFIC AND TRANSPORTATION PLANNING

OBJECTIVES

- To familiarize students with different transport systems, and also principles, practices and policies of transportation planning.
- To understand the basic concepts of planning and designing transport facilities and traffic management tools for human settlements.
- To understand the concepts of highway capacity.
- To understand the various methods of collecting traffic data.
- To learn the principles of intersection design and importance of road safety design.

UNIT I URBAN TRANSPORT AND LAND USE

Urban activity systems, urban road structure, urban forms structure and its impact on travel pattern, land use-transport cycle, concept of accessibility and its impact on land use; urban structure and public transport, urban passenger transport system characteristics, public transport modes; urban freight transport; Land use and mobility patterns in cities – Implications of land use patterns on transport and mobility- field study.
UNIT II  ROAD GEOMETRIC AND INTERSECTIONS AND ROAD CAPACITIES  15
Urban and rural road classification – Traffic characteristics – Geometric elements on alignment, Sight distances and cross-sectional elements – Different types of intersections – Grade-separated intersections – Concept of PCU and Level of Service – Traffic flow and speed relationship diagrams—Road capacities—field study to map the road geometrics and intersection.

UNIT III  TRAFFIC SURVEYS AND TRAFFIC MANAGEMENT  15

UNIT IV  TRANSPORT PLANNING  15
Outlining the 4-stage transportation planning process and its interrelation with master planning process – Need and benefits of land use and transport integration– Different mass transit modes – Capacities – Limitations – Planning aspects – Para transit modes – Private transport modes – Inter-modal integration – Unified transportation authority—case study on Mobility Plans and hand on practices.

UNIT V  SUSTAINABLE URBAN MOBILITY  15
Need for sustainable development and transport – Non-motorized transport, Planning for NMT - Integration of NMT into transport master plans. – Transit Oriented Development – Innovative transport developments and its implication on urban development and mobility.

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1  Apply the concept of safety.
CO2  Conduct traffic surveys and elements of traffic engineering.
CO3  To plan for the conduct of field survey, examine and analyse data and information collected through various field surveys, perform analysis.
CO4  Make presentations of traffic and transportation data in relation to human settlements and to identify the issues related to traffic and transportation planning.
CO5  Understand urban transportation planning process, its relationship to transportation facilities development.
CO6  Evaluate urban transportation planning, and possible means of achieving project and societal objectives.

TEXT BOOKS

REFERENCES
2. AASHTO A Policy on Geometric Design of Highway and Streets
3. Indo-HCM, 2018 and relevant IRC codes
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OBJECTIVES

- To synthesize knowledge and skills obtained in the core courses in planning in order to prepare a plan for an urban settlement.
- To understand various types and hierarchy of urban Plans, their Characteristics and Contents.
- To prepare a sector integrated comprehensive development plan of a town or a city or a metropolis.
- To understand the importance and constrains of process of plan formulation.
- To evolve Development Policies; Land Use Plan, priorities and Implementation mechanism for a selected Urban Area.

CONTENT

The students are focused to learn to review and prepare plan for a medium size town such as Development Plan/Master Plan/Structure Plan. The plan would include components, such as Physical Characteristics, Natural Resources, Demographic Characteristics, Economic base, Employment, Shelter, Transportation, Social and Infrastructure facilities, Finance, Institutional set-up etc.

An urban settlement would be selected based on the selection criteria and the information regarding the components stated above would be collected both from the primary and secondary sources and analyzed.

Plan making process – Delineation of planning area, Assessment of developmental issues, Plan period, Formulation of aim and objectives, Projection of requirements, Development proposals and phasing - Public Participation.

A Stake holders consultative meeting is also conducted at the field level. A report/ maps/ charts are the media through which the case study is expected to be presented.

TOTAL : 150 PERIODS

COURSE OUTCOMES

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

CO1 Ability to gain the knowledge on approaches adopted in various development plans through case studies and literature reviews.

CO2 Elucidate the delineation of case study area and collection of data on various physical, social and economic aspects.

CO3 To analyze the existing policy and planning literature on urban development plans, and to examine field survey data and information.

CO4 Ability to vision the ideology of preparation of comprehensive plan by considering stakeholder’s needs, issues, potential and priorities.
CO5 To plan and propose different future scenarios, priorities of development, action areas, phasing and monitoring, and to propose governance structures for the implementation of the plan.

CO6 Ability to gain the knowledge on approaches adopted in various development plans through case studies and literature reviews.

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TP3301 PROJECT FORMULATION, IMPLEMENTATION AND EVALUATION

OBJECTIVES
- To examining techniques and procedures relevant for project planning and implementation in developing countries.
- To expose students to techniques of project formulation, appraisal and management.
- To provide inputs to students for learning project evaluation, monitoring and implementation.
- To evaluate economic and distributive effects of completed or ongoing development projects.
- To identify the funding options for development plans and projects.
UNIT I INTRODUCTION TO PROJECT FORMULATION
Overview of the project cycle – Planning process and project planning – Search for project ideas – Strategies in capital allocation – Key elements in project formulation – Methods and tools for project formulation – Project identification and selection – Preparation of feasibility reports.

UNIT II PROJECT APPRAISAL

UNIT III PROJECT MANAGEMENT AND PRE-IMPLEMENTATION PLANNING
Project characteristics, management techniques, new techniques of management by objective (MBO), work breakdown structure; network analysis, CPM, PERT; resource levelling and allocation; time-cost trade-off aspects.

UNIT IV PROJECT FINANCING AND IMPLEMENTATION
Funding options for urban development projects– Tender procedure– Tamil Nadu transparency in tender rules-Organizational aspects in project management–Network techniques for project management.

UNIT V PROJECT MONITORING AND EVALUATION
Project monitoring: meaning objectives and significance; Monitoring techniques: integrated reporting, Milestones, time and cost overrun and under runs, unit index techniques; Project evaluation: meaning, objectives, scope, stages, approach and steps, Life of a project; Techniques of project evaluation; case studies in urban and regional development projects.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 To show knowledge about evaluating and monitoring of implementation of development projects.
CO2 Formulate a project management technique for the given project.
CO3 Formulate planning projects with a thorough understanding of project appraisal techniques.
CO4 Carryout resource loading and resource levelling.
CO5 Demonstrate skills for the preparation of detailed reports of development projects.
CO6 Evaluate projects by applying appropriate project evaluation technique.

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TP3302 PLANNING POLICIES AND STRATEGIES

OBJECTIVES

- To provide an in-depth study of approaches for policy formulation, implementation and evaluation.
- To provide a critical analysis of policies that are directly connected with inclusive sustainable urban development.
- To understand constraints in formulating policies.
- To understand factors such as physical, social and economic structure and policies that help shape the city.
- To understand the pivotal role of Governance, its policies, structures, practices and its implications on determination of planning proposals.

UNIT I APPROACHES IN PUBLIC POLICY MAKING


UNIT II POLICY MAKING – POWERS AND ROLES


UNIT III POLICY IMPLEMENTATION

UNIT IV  POLICY EVALUATION  9

UNIT V  CASE STUDIES OF SCHEMES & POLICIES  9

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1  Gain knowledge in the process of policy making, implementation and evaluation in terms of its significance and contextual perspectives.
CO2  Expose to existing policies relevant planning of urban and rural settlements at the National and State levels.
CO3  Review the National and International Policies related to Inclusive sustainable Urban and Regional Development.
CO4  Explores important substantive areas and concepts in the field of urban and regional planning and current urban planning and policy issues and debates.
CO5  Investigates the outcomes of decisions made at local, regional, national, and international levels of governance.
CO6  Understand the consequences of different policies on shaping the trend of development.

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H-High M-Moderate L-Low

TP3321 REGIONAL PLANNING STUDIO L T P/S C 0 0 10 5

OBJECTIVES

- To understand different approaches to plan making, role and relevance of regional planning, in the context of 73rd and 74th constitutional amendment acts.
- To enumerate the growth and expansion of human settlement within the contextual framework of regions and the approach to planning them.
- To acknowledge regional planning process and manner of preparation of regional plan.
- To impart techniques, tools and methods on preparation of development plan for a region or district.
- To experiment the significance of regional plan Preparation, Publication and Sanction rules.

CONTENT

Elaboration of the principals and techniques adopted and learnt themes and planning projects. Application of the techniques of planning in the preparation of development plans at regional, district, blocks, central village and village level, along with community action and participation plans.

Review of regional plan contents, methods and practices at local, national and international levels.

Studies and analysis would consist of survey, local renewable development, settlement distribution pattern, resource mobilization, environmental protection, institutional and implementation framework.

Plan making process – Delineation of planning area, Assessment of developmental issues, Plan period, Formulation of aim and objectives, Projection of requirements, Development proposals and phasing - Public Participation.

Conducting Stakeholders meeting to assess the community needs becomes very important input for the preparation of development plans. Identification of projects programmes and schemes with funding sources.

TOTAL: 150 PERIODS

COURSE OUTCOMES

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

CO1 Appreciate the rationale for planning at regional level, in consideration of economic, social, and cultural factors in regional growth and change.

CO2 Envision the spatio-economic growth trajectory of the region.

CO3 Experimental approaches towards stakeholder involvement, community engagement, and working with diverse communities.

CO4 Propose spatial and sectoral interventions at regional scale, both in urban and rural context.
CO5  Promote the association amongst land, resources, disparity, diversity, interdependence and equity in regional setting.

CO6  Prepare alternate spatial strategies, policies, and to make planning proposals, for the identified hierarchy of settlements.

TEXT BOOKS

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TP3322  THESIS PHASE - I

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<td>- To develop knowledge and skills in identifying appropriate literature for a given topic of research /study, draw inferences and understanding from a wide range of literature.</td>
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<td>- To explore different tools and techniques and qualitative and quantitative analysis that are acquired in the context of the study undertaken.</td>
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<td>- To engage in logical dialogues and discourses based on past research.</td>
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<td>- To acquire report writing skills, Report structuring and Chapterisation.</td>
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<td>- To promote research in urban and regional planning.</td>
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<td>- The preparation of Thesis is undertaken in two phases. Thesis Phase I is undertaken in III Semester and the Phase II in IV Semester</td>
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CONTENT

Students shall be required to undertake thesis work in the areas of relevance and concern in the urban and regional development process.

The broad areas of study would include
1. Planning for region, urban development and renewal
2. Planning for infrastructure development
3. Urban governance, management and finance
4. Environmental and sustainable development
5. Housing, heritage conservation and tourism
7. e-Governance and urban local governments and e-Participation of communities in city infrastructure planning and development
8. Any other emerging areas in the field of urban and regional planning.

During the Phase I,

The students collect, review literature on the Thesis topic and enrich their knowledge on the topic of thesis. Documentation of multiple viewpoints, research methodologies, tools & techniques of analysis and arguments on the topic selected and Development of research thrust; lessons learnt from literature review to the pre-thesis work for formulating research topic, brief and methodology.

Selection of study area, identification of extent and spread of intervention; collection of data for preparation of base map and study area description, selection of other relevant case studies.

Phase II of their Thesis and also in evolving appropriate and tested solutions for issues identified in the topic of Thesis. A formal report written systematically on the topic of thesis will be produced as part of the course.

TOTAL : 150 PERIODS

COURSE OUTCOMES

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

CO1 Identification of topic of interest having relevance to planning profession, Establishing a need for research in the chosen domain.

CO2 Articulate responses to various authors, books and papers and move from argument to argument in a succinct and logical way to identify a research gap.

CO3 Select a research design and appropriate tools & techniques for data analysis.

CO4 Identification of study area and significance.

CO5 Report structuring and Chapterisation.

CO6 A well laid plan/methodology for Phase II of the Thesis towards identification of issues, setting up objectives, drawing viable proposals on the topic of thesis.

TEXT BOOKS

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TP3311 INTERNSHIP TRAINING

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OBJECTIVES

- To have direct understanding of the practice of planning profession.
- To formally and informally interact with the Officials engaged in planning to enhance employability of the students.
- To help in developing depth of knowledge and inquiry in any one of a chosen area of specialty in Planning.
- To enable interacting with practicing Planners, allied professionals, researchers and organizations working in the field of specialty in planning.
- To provide students the opportunity to test their interest in a particular career before permanent commitments are made.

CONTENT

The students shall undertake the Internship Programme, in an Organization engaged in activities relating to Urban & Regional Planning for a period of 4 weeks. The Internship Training providing the necessary acumen and knowledge to the students to become employable by any Planning Organization.

The Internship is also expected to make familiar the practical demands and complexities of planning. The students may also utilize the Internship Programme to strengthen the quality of their thesis works. The students are expected to complete the Internship Training before the commencement of the third semester and enroll for the same in the third semester.

The students shall submit an Internship Training Report, on or before the last working day of the third semester. The students shall be evaluated on the basis of the Report submitted through a Viva-Voce Examination, as part of the End Semester Examinations of the third semester.
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Express the basic knowledge of named social sciences and relationship of this knowledge with the core ideas of urban and regional planning.

CO2 Exposure in and enrichment with respect to specific areas of planning for pursuing practice or independent research.

CO3 Able to determine the challenges and future potential for his / her internship organization in particular and the sector in general.

CO4 Able to test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period.

CO5 Apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization.

CO6 Analyze the functioning of internship organization and recommend changes for improvement in processes.

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TP3421

THESIS PHASE - II

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OBJECTIVES

- To develop the knowledge and skills to carry out independently the identification of development issues through a well laid out methodology.
- To enhance the design/research abilities and apply the knowledge gained.
- To develop the knowledge in Select a research design and appropriate tools & techniques for data analysis
- To propose rational solutions towards sustainable development of the urban and rural settlements.
- To develop the knowledge and skills to carry out independently the identification of development issues through a well laid out methodology.

During the Phase II of the Thesis, the students shall apply the literature knowledge gained in the Phase I to specific Case Study areas/topics to identify developmental issues and offer solutions for the same. The outcome of Phase I will also help the students to frame appropriate methodologies for the Phase II Thesis and also in evolving innovative and tested solutions for issues identified in the case studies.

CONTENT

As part of the course, the students are expected to work in various stages. Each student shall be required to present the work in the format as suggested by the department i.e., orally, graphically, written, etc.

The thesis shall be monitored continuously and periodically through internal marked reviews to check the consistency of work, the relevance of the analysis with respect to the data collected and project scope, and the progress towards logical proposals.
The final output shall be in the form of a draft report, which once approved by the department will be followed by the submission of a detailed report and sheets/visuals for external jury members, in a given format. The thesis shall also be presented orally in external jury by each student in the form of visuals / sheets as necessary for each topic.

TOTAL : 150 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Create coherent key take aways on various books and papers, proceeding logically to the thesis topic.

CO2 Ability to understand sectoral and spatial issues emerging as a consequence to development and scientifically analyze the planning issues.

CO3 Apply solutions appreciating the principles of planning in a democratically acceptable and a justifiable manner.

CO4 Conduct data analysis and analyze scenarios related to development.

CO5 Formulate development related proposals or solutions.

CO6 Ability to write and present a Research Proposal.

TEXT BOOKS

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H-High M-Moderate L-Low
OBJECTIVES

- To understand the concepts of land as an urban resource and its value in the planning process.
- To inculcate the understanding the concepts of real estate management and valuation.
- To regulatory framework affecting land management and real estate development.
- To apply techniques of land management and real estate development in the planning.
- To understand the Key issues and their context in land management.

UNIT I

LAND ECONOMICS AND LAND MARKETS

Land and land use, demand forecasting, factors affecting land supply and demand; Market & financial instruments.

UNIT II

SUPPLY AND DEMAND MANAGEMENT

Supply management includes Property rights, user and exchange rights, regulation in land markets; Social justice and land distribution; Master plan, zoning and other planning regulations and their impact on supply; Land management techniques. Demand management includes Income elasticity of land, business cycles and its impact on demand for land; Preferential dynamics; Physical, fiscal, financial and legal incentives for land dynamics; Big scale investments and their effect on land.

UNIT III

LAND PRICING AND REAL ESTATE MARKETS

Definition, principles of real estate value concepts, The status of land and property ownership in the Constitution of India, types of land, ownership and various land tenure options. introduction to various laws related to real estate - Real Estate (Regulation and Development) Act, 2016, Real estate investment and portfolio management, FDI, role of NRIs and PIOs. Land valuation techniques, land pricing, subsidies, auctions; type of development, land price index, land Information System (LIS), land records.

UNIT IV

REAL ESTATE PROJECT FORMULATION

Real estate project formulation - Real estate development process - Asset management, property insurance, taxation and fiscal incentives - Government policies and industry organization – Public private partnerships and joint ventures, rating, and risk assessment.

UNIT V

CASE STUDIES

Case studies of real estate development in public, private, partnership sectors - Real Estate as facilitator of development - Development of real estate as a tool for controlling land and property prices - Transaction and renting of real estate - Lease deeds/ sale deeds, sale documents, registration - Mortgage and pledging.

TOTAL : 45 PERIODS

COURSE OUTCOMES

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

CO1 Ability to understand basic concepts of land management and real estate development.
CO2 Formulate planning projects with thorough understanding of land markets, development models and legal framework.
CO3 Formulate an appropriate land management technique for the given context.
CO4 Analyse functioning of land market and identify potentials, risks involved in real estate transactions.
CO5 Demonstrate links between economic, social, and political forces on one hand, and real estate on the other.
CO6 Examine and analyse the nature of real estate and land markets analytically.

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H-High M-Moderate L-Low

TP3002 PLANNING FOR SPECIAL AREAS L T P/S C 3 0 0 3

OBJECTIVES
- To equip the students with the knowledge of addressing issues of urgent concern.
- The syllabus focuses on preparation of special area plan with an emphasis on special economic zones, port areas, etc.
- To impart knowledge on salient features, governance framework of special areas.
- To identify infrastructural needs of special areas.
- To get an exposure to a special area plan.

UNIT I COMPONENTS AND CLASSIFICATION OF SPECIAL AREAS
Concepts and components of Special Area Planning; Composition of land uses of special areas, compatible land use, Typology of formal and functional special areas: border area, hill area, coastal area, desert area, special economic zone, port city, Aerotropolis, Medi-city, Knowledge city, Heritage area, defence Area; Contemporary approaches for Special Area Planning.

UNIT II CHARACTERISTICS OF SPECIAL AREA
Socio-economic, Physiographic, Geographic and Political features of Special Areas.
UNIT III  GOVERNANCE AND INFRASTRUCTURE FOR SPECIAL AREAS
Legislation and Governance framework of special areas; Land management in special areas; Survey of statutes governing special areas; Unique infrastructural needs of special areas, Capital investment and funding methods, public-private partnerships in the development process.

UNIT IV  EMERGING ISSUES IN SPECIAL AREAS
Social and environmental sustainability, Planning issues of special areas, maximizing the mutual benefits of urbanization and SEZ development via urban planning and policy processes, agglomerated economy, Incorporating the SDGs as part of SEZ policy- value proposition for investors, challenges for future.

UNIT V  CASE STUDIES

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1  Ability to delineate the functional domain of special areas

CO2  Collate and tabulate the information on socio- economic, geo- historic, physical and political features

CO3  Analyse the land management system in special areas

CO4  Knowledge on relevant acts, standards, programme and policies for special areas

CO5  Identify the challenges and planning issues in special areas

CO6  Familiarize to plan and implement special area plans based upon the theory, experiences and methods.

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TP3003  URBAN GOVERNANCE AND PUBLIC FINANCE FOR PLANNING  L  T  P/S  C  3  0  0  3

OBJECTIVES

- To impart necessary knowledge and skills to enable students to appreciate the constitutional sanctity of municipal governments
- To explain the constitution and function of municipal governments and other urban institutions/agencies
- To relate the context of the use of various urban management tools
- To recognize the constitutional provisions of municipal finance
- To explain the framework of municipal fiscal and non-fiscal resource mobilization

UNIT I  URBAN AND REGIONAL GOVERNANCE

Comprehending governance; History of governance of urban and regional after 1947; Organizations involved in planning, development and management of urban and regional areas; Present status of urban and regional governance in India. Municipal infrastructure development.

UNIT II  MUNICIPAL GOVERNANCE AND PUBLIC PARTICIPATION

History, the evolution of centralization versus decentralization of governments- Government reforms- lessons from JNNURM, citizen participation and participatory governance- organization, structure, function, role of people in local government, decision-making process. Network Governance and Multi – stake holders Governance.

UNIT III  FINANCIAL INSTITUTIONS

Concept of public finance, Approaches, Development administration at National, State and Local level, Structure of implementation authorities: Improvement trusts, Development authorities, Metropolitan Development authorities and their relationship with local governments. Financial institutions: Concept, typology and their role. Finance commissions, Fiscal agenda of development schemes and sources of revenues; equities; loans; debt financing; pooled finance development fund, national and urban infrastructure fund.

UNIT IV  FINANCIAL MANAGEMENT RESOURCES

Structure of finances, fiscal problems and issues of financial management, credit rating, Implications of 74th Amendment for municipal finance, expenditure pattern, bilateral and multi-lateral lending institutions, mobilizing resource for a project- financial resources, project resources and other resources.
UNIT V  CASE STUDIES
Link with spatial plans, processes, components, investment needs, budgeting, financial investments in infrastructure and services. Financing of urban development, infrastructure and services-mechanisms and instruments, subsidy reduction, cost recovery, public-private partnerships, Micro-Finance, Financial appraisal, Investment appraisal, Financial risk- sources, measures and perspectives on risk, sensitivity analysis. Innovative methods for Financing Urban Development: Monetary Exaction: betterment levy, impact fees, external development charges and vacant land development tax; Land exactions: Transfer of development rights, town planning schemes, monetisation of under-utilised public assets; Valorisation charges; Debt financing, partnership financing, financing through intermediaries, Municipal bonds, and pooled financing; Funding of development plan proposals and projects.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Ability to implement the core ideas of urban and regional planning.
CO2 Develop a deeper understanding and knowledge of constitutional provisions pertaining to urban and regional governance
CO3 Demonstrate an understanding about the financial challenges being faced by urban local bodies.
CO4 Propose effective financial management systems with enhanced organizational capacity for urban reforms.
CO5 Express an understanding of the major aspects of development finance including municipal finance; and to develop specialised knowledge in urban finance.
CO6 Skills to prepare financial operating plans and suggest appropriate approaches.

Text Books

References
5. Joshua Mugambwa (2018)," Handbook of Research on Urban Governance and Management in the Developing World", IGI Global Publisher.
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H-High M-Moderate L-Low

OBJECTIVES
- To introduce the evolution of urbanism and the urban design discipline.
- To understanding of cities through research, documentation and urban design interventions.
- To develop a holistic view of the city as a basis for designing the city/city components in the third dimension.
- To furnish the complex challenges faced by contemporary urbanism.
- To introduce emerging concepts and strategies in urban interventions.

UNIT I INTRODUCTION
Introduction to the origin and evolution of urbanism across the world with key examples. Historic overview of the development of the urban design discipline and principles – scope and objectives of urban design – Its relation with Architecture and Urban Planning.

UNIT II URBAN DESIGN APPROACHES
Principles of Urban Spatial Organization – Elements of Urban Design – social, perceptual, functional, temporal and morphological aspects of Urban Design - Introduction to the different tools and methods to read the urban environment and interpret underlying issues.

UNIT III CONTEMPORARY ISSUES AND CHALLENGES IN URBANISM
Introduction to various contemporary issues that influence urbanism such as globalisation, environmental degradation and pollution, imageability and identity, digital revolution, splintering urbanism, privatization of the public realm, climate change, etc.

UNIT IV URBAN INTERVENTIONS: CONTEMPORARY PROCESSES
Contemporary processes and digital tools in urban design. Place-making in digital age. Participative design and community engagement. Restructuring the urban realm, urban conservation, urban renewal and regeneration policies. Suitable case studies for all the above.

UNIT V CASE STUDIES
Literature review of National and International projects – identification of real scale urban problems – experimentation of urban design approaches – documentation – proposals and strategies.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
- CO1 Ability to identify, define and analyze current urban design issues.
- CO2 Develop urban design principles for the sustainable growth of our cities.
- CO3 Develop theoretical framework to conceptualize and comprehend the nature of the urban.
- CO4 Evaluate the performance of urban design projects, policies and processes.
- CO5 Understanding of the implication of plan making process.
- CO6 Comprehend the urban design approaches to various contemporary issues.
TEXT BOOKS

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TP3005 ECOLOGY AND NATURAL RESOURCE PLANNING  L  T  P/S  C
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OBJECTIVES
• To introduce the ecological concepts that are currently receiving attention in the scientific literature.
• To introduce the significance of physical environment and its various parameters.
• To expose the need of sustainable management of the Earth’s depleting natural resources, in relation to the growth of the human population.
• To provide a wider perspective on national and international natural resource management (NRM) issues.
• To expose the traditional and contemporary approaches of resource planning and management approaches.

UNIT I ECOLOGICAL CONCEPTS IN PLANNING  9
Definitions, types and principles of ecology and footprints, importance of urban and human ecology, Ecological theories and practices, principles and values towards planning development, role of nature and the functions of ecological systems.

UNIT II CARRYING CAPACITY AND LIMITS TO GROWTH  9
Population ecology, carrying capacity and human population, understanding limits to growth, consumption and its dimensions – food, energy, non-biodegradable, travel, concept of ecological footprint - land based understanding of carrying capacity.
UNIT III URBAN ECOSYSTEMS
Species evolution and interaction, implications of human interventions in ecological niche, biodiversity and its significance, valuation of biodiversity, Ecological impacts with evolving ecological systems, Delta and wetland ecosystems, arid and semi-arid ecosystems, Urban ecosystem approach, evolution and significance.

UNIT IV QUANTITATIVE ECOLOGY
Introduction to quantitative ecology, Identification of ecological parameters for planning at different levels, Site planning, Settlement planning, regional planning. Data needs, formats for data collection Types of analysis required to evolve ecological parameters; Environmental impact assessment, Methods and their appraisal. Preparation and analysis of resource inventories and resource matrices.

UNIT V RESOURCE PLANNING AND MANAGEMENT
Finiteness of resources, examples of transfer from one resource to another in history in different parts of world; Development, utilization and conservation of resources, resource planning, integrated resource planning approach; Resource regions, their problems and potentials; Resource management, traditional and contemporary approaches. Resource development in India, some selected areas (energy, water, manpower, etc.); and Government's missions under the National Action Plan on Climate Change.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Ability to analyze the prevalence of ecological concepts.
CO2 Analyze eco-system, resources and their importance for planning
CO3 Knowledge on how ecological concepts can inform planning processes, from goal establishment to monitoring.
CO4 Appraise the environmental parameters for consideration while planning.
CO5 Ability to express basic understanding of resource management as they relate to urban and regional planning.
CO6 Develop basic understanding of resource management and their application in planning.

TEXT BOOKS

REFERENCES
TP3006 CLIMATE RESILIENT AND DISASTER MANAGEMENT

OBJECTIVES

- To Introduce the fundamental concepts of climate resilient development.
- To expose to the importance of restoring/protecting nature and implementing nature-based solutions, for climate change resilient development.
- To investigate and analyze case examples of adaptation and resilience drawn from regions throughout the world.
- To understand processes and mechanisms of disaster management, disaster risk mitigation, and post disaster measures.
- To expose students to relevant planning polices and guidelines for reduction of disaster risks.

UNIT I INTRODUCTION TO CLIMATE RESILIENT

UNIT II NATURE BASED SOLUTIONS FOR CLIMATE RESILIENT DEVELOPMENT
Concepts of Nature based solution and Ecosystem-based Adaptation, Adaptation, development and poverty, Adaptive capacity and pathways, Importance of restoring/protecting nature, planning with nature for climate mitigation and adaptation, Challenges and Advantages of Mainstreaming Ecosystem-based Adaptation, Cost benefit analysis.

UNIT III CONCEPTS OF DISASTER MANAGEMENT
Disaster: Definitions, concepts, types and perceptions; Recent initiatives at national and state level; Kyoto Framework of disaster mitigation and management; Paris agreements; Disaster management policy at the national and state levels; Disaster management statutes at national and state levels.

UNIT IV DISASTER MANAGEMENT MECHANISMS
Disaster management mechanisms at national, state and district levels; Select global practices; Disaster and development; Development plans and disaster management plans; Roles played in disaster management by INGOs, NGOs, CBOs and armed forces; and Community Based Disaster Preparedness.
UNIT V  DISASTER PREPAREDNESS AND POST DISASTER MANAGEMENT

Forecasting and early warning systems for various types of disasters; Role of communication and information technologies in disaster management; Disaster education and awareness; Case studies on natural disasters; Climate change and its implications in disaster mitigation; post-disaster management including rehabilitation and reconstruction of disaster affected areas; Safe hill area development guidelines and coastal zone regulations for safe habitation.

TOTAL : 45 PERIODS

COURSE OUTCOMES

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

CO1  Develop a comprehensive understanding of the interface between urban development, disaster risk and climate change.

CO2  Ability to express the basic knowledge of how climate impacts, are affecting key development sectors.

CO3  Develop the knowledge and skills to identify climate risks to development programs.

CO4  Skill on effectively communicate about climate change risks, and apply existing resources and information to solving climate-related development problems.

CO5  Ability to conduct state-of-the-art research in areas of climate change vulnerability, adaptive capacity, adaptation pathways and resilience.

CO6  Express how disaster management relates to urban and regional planning.

TEXT BOOKS


REFERENCES


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H-High M-Moderate L-Low
OBJECTIVES

- To introduce students to the key approaches to measuring and monitoring environmental systems.
- To understand the key concepts associated with environmental modelling, including model types, model structure, model calibration and model evaluation.
- To understand the application of modelling approaches in environmental research.
- To display, describe and analyze numerical environmental data.
- To develop students’ practical data analysis and modelling skills.

UNIT I
PHYSIO-CHEMICAL AND BIOLOGICAL ANALYSIS OF WATER - I
Understanding of relevant instruments/ equipment’s and procedures for determination of color, Temperature, Turbidity, odor, pH, alkalinity, acidity, Electrical Conductivity (E.C), Total Solids (TS), Total Dissolved Solids (TDS) and Total Hardness (TH).

UNIT II
PHYSIO-CHEMICAL AND BIOLOGICAL ANALYSIS OF WATER - II
Understanding of relevant instruments/ equipment’s and procedures for determination of Nitrates, Phosphates, Sulphates, Chlorides, Fluorides, potassium and sodium, Heavy metals such as lead, copper, Nickel, Iron, chromium, etc.

UNIT III
PHYSIO-CHEMICAL AND BIOLOGICAL ANALYSIS OF WATER - III
Understanding of relevant instruments/ equipment’s and procedures for determination of Dissolved Oxygen (DO), Biological Oxygen Demand (BOD), Chemical Oxygen Demand (COD). The biological parameters involved in the qualitative analysis of planktons.

UNIT IV
WEATHER, SOIL AND AIR QUALITY PARAMETERS
Understanding of relevant instruments/ equipment’s and procedures of air quality – TSPM, RSPM, SO2, NOX, stack monitoring, noise level measurements, etc. Understanding of relevant instruments/ equipment’s and procedures related to soil quality, pH, EC, soil moisture, Phosphate, sodium, potassium, etc. Understanding of relevant instruments/ equipment’s and procedures related to weather, temperature, relative humidity, rainfall, wind direction and speed.

UNIT V
MODELLING
Environmental models, types of models - process-driven models, artificial neural networks, environmental processes, model complexity, model application, model calibration- different optimization methods, including gradient methods and evolutionary algorithms, model validation - structural, replicative and predictive validity and stochastic modelling - types of uncertainty, random variables, risk-based performance measures and reliability analysis, environmental decision-making multi-objective trade-offs, multi-criteria decision analysis.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Ability to analyze past, present, and future dynamic environments.
CO2 Knowledge to attain the appropriate level of advanced theoretical and practical expertise required to collect, interpret, and analyze data.
CO3 Attain the modelling skills required to investigate the interrelationships between environmental variables, and to predict their responses to changing internal and external conditions.
CO4 Attain intellectual and practical skills required to design and undertake field and/or laboratory experiments in contemporary environmental process-monitoring.
CO5 Design and test appropriate environmental models with the data they collect.
CO6  Ability to gain a practical understanding of the research process, and the skills necessary to see an environmental research project.

TEXT BOOKS

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H-High M-Moderate L-Low

TP3008  ADVANCED GIS IN PLANNING  

OBJECTIVES
- To enable student to work on advance applications in GIS.
- To learn the process of customization with Phyton
- To make student familiar in 3D modeling.
- To enable student to work in raster analysis.
- To enable student to work in drone imageries.

UNIT I  GIS MODELING WITH MODEL BUILDER  

UNIT II GIS MODELING WITH PYTHON 15
Introduction to Python for ArcGIS, GIS customization, Python language, Spyder, Python fundamentals, Python script tools, Lists, Loops, Decision structures, Strings, Troubleshooting, Batch processing, reading attribute data, Cursors, working with raster data, Python functions and modules, Reading and parsing text files, writing geometries, Working with map documents.

UNIT III INTRODUCTION TO 3D MODELING 15

UNIT IV RASTER ANALYSIS 15
Introduction to Raster analysis, introduction to ERDAS, components of the software, methods of Change detection, raster classification, raster analysis, NDVI, NDBI, NDSI, SAVI. Analysis using Google earth Engine.

UNIT V DRONE SURVEYING AND MAPPING 15
Drone for Planning, importance of drones in urban Planning, type of Drones, Types of Aerial Photographs, Concept of Vertical Photographs, Oblique photographs and its types, Geometric Properties of Aerial Photograph, Introduction to Pix4D for drone mapping, image processing using Pix 4D, Creation of 3d Surfaces.

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Perform automation in GIS using Model builder.
CO2 Customization with python in GIS, for planning analysis.
CO3 Exposed to methods of creating 3D models using city engine.
CO4 To rule based 3D modeling and analysis of raster using google earth engine.
CO5 Exposed to drone mapping technology and its usage in planning.
CO6 Familiarize students in drone image processing softwares.

TEXT BOOKS

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H-High M-Moderate L-Low

TP3009 IoT APPLICATION IN PLANNING

OBJECTIVES
- To enable students to understand the importance of smart components in cities.
- To familiarize students in the concept of simulation in various sectors.
- To expose student to use of artificial intelligence in field of planning.
- To understand the importance of big data in planning.
- To expose students to IoT application related to planning.

UNIT I SMART CITIES AND ITS APPLICATIONS
Introduction of Smart City, Objective and components in smart cities, History of Smart city world and India, basics of Soft and Hard Infrastructure of Smart City, Planning and development of Smart city Infrastructure.

UNIT II SIMULATION IN PLANNING
Simulation studies in urban planning, necessity of simulation, design and development of operational models, software used for simulations, overview of simulation in land Dynamics, Transportation, Environment and climatic studies.

UNIT III ARTIFICIAL INTELLIGENCE IN PLANNING
A new agenda for AI-based urban planning, AI and the limits of human creativity in urban planning and design, Complexity science for urban solutions, Classes of AI tools, techniques, and methods, urban form analysis through morphometry and machine learning, Case studies.

UNIT IV BIG DATA FOR PLANNING
Big data in Urban Planning, Urban Change and the Opportunity to Use Big Data Analytics in various sectors related to urban planning, Urban Morphology analysis, Urban Flow analysis, Urban health, microclimate, and environment analyse case studies.

UNIT V INTERNET ON THINGS IN URBAN PLANNING
Internet on Things and Smart Cities, components of IoT in smart cities, importance of IoT in Smart Cities, IoT Architecture, Layers of IoT Architecture, use of IoT in, physical infrastructure, Environmental Monitoring, Transportation Planning, Public Transport, Parking, Disaster management, Case studies.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
- CO1 Understand the components of smart city and its smart applications.
- CO2 Exposed to the simulation techniques and its importance to planning.
- CO3 Familiarized to the different simulation models in planning.
- CO4 Understand the importance of artificial intelligence in planning.
CO5 Understand the usage of big data in urban planning.
CO6 Exposed to IoT application and its usage to urban planning.

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H-High M-Moderate L-Low

TP3010 STREET FOR PEOPLE

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OBJECTIVES

- To understand the basics of, and street design and its elements.
- To learn the principles of intersection design.
- To have knowledge about street capacity and its level of service.
- To know about the street Amenities and street elements.
- To learn the importance of road safety.

UNIT I STREETS

UNIT II  DESIGN OF STREET ELEMENTS  

UNIT III  STREET AMENITIES  
Different utilities and services – street design for storm water and solid waste management- road infrastructure facilities - public plaza - Road user facilities - Parking facilities - Cycle tracks - Pedestrian facilities.

UNIT IV  STREET AND TRANSPORT  

UNIT V  STREET PERFORMANCE SAFETY ANALYSIS  

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1  To know about the principles of street design and planning.
CO2  To understand about the street elements and its design.
CO3  To understand about the intersection design and its function.
CO4  To understand about to amenities to be provided for the street.
CO5  To understand about the traffic and transport in the street.
CO6  To understand about the road safety and performance analysis.

TEXT BOOKS

REFERENCES
3. National Association of City Transportation Officials, Urban Street design
4. Urban street design guidelines Pune, Pune municipal corporation
5. Street design guidelines, Delhi Urban art commission
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H-High  M-Moderate  L-Low

TP3011  URBAN TRANSPORTATION SYSTEMS

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- To understand the characteristics of various urban transportation systems
- To learn the concepts of route network design
- To familiarize with scheduling
- To be acquainted with sustainable urban transportation system
- To study the planning aspects of terminals

UNIT I  TRANSPORT SYSTEMS
Urban modes and service types - Technological and operational Characteristics – environmental considerations – relative cost economics – criteria for selection.

UNIT II  ROUTE NETWORK DESIGN
Transportation Demand estimation, Data requirements, Network planning - Corridor identification - Route Systems and Capacity.

UNIT III  SCHEDULING

UNIT IV  TERMINAL PLANNING
Planning and design of terminals - Bus stop capacity – Depot location - Depot layout, Parking patterns, Rail Transit: Station Arrangements - Way capacity and Station Capacity.

UNIT V  SUSTAINABLE URBAN TRANSPORTATION
Preferential treatment for high occupancy modes, promoting non-motorized modes of transport - Integrated land use and transport planning – Demand management techniques - Integrated public transport planning; case studies - Smart Cities.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

- CO1  Compare and select suitable urban transportation systems
- CO2  Design route network
- CO3  Schedule the transit units and crew
- CO4  Apply the concepts of terminal planning
- CO5  Have a knowledge of sustainable transportation systems
- CO6  Integrate the public transport with non-motorized mode of transport
TEXT BOOKS

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TP3012 TRANSPORT ECONOMIC AND SOCIOLOGY  L  T  P/S  C  3 0 0 3

OBJECTIVES
- To be aware of the concepts in transportation decision making.
- To learn about transportation cost and vehicle operating cost.
- Understand the way macro-economic processes such as de-industrialization, segregation, and sub-urbanization have interacted to create areas of concentrated urban poverty.
- To familiarize with the formulation of project alternatives and applying the economic analysis methods.
- To understand the principles and procedure of financing of road projects.

UNIT I CONCEPTS IN TRANSPORTATION DECISION MAKING  9
Overall transportation project development, budgeting, financial planning, the process of transportation project development, models associated with transportation impact evaluation.
UNIT II TRANSPORTATION AND VEHICLE OPERATING COSTS
Classification of transportation costs, transportation agency costs, transportation user costs, general structure and behavior of cost functions and road pricing. Estimating Transportation Demand and Supply - supply equilibration, dynamics of transportation demand and supply, elasticity of travel demand and supply, classification of elasticity- Fuel costs - Maintenance and spares, Depreciation - Crew costs - Value of travel time savings - Accident costs. Economics of traffic congestion - Pricing policy.

UNIT III ECONOMIC ANALYSIS OF PROJECTS
Methods of evaluation - Cost-benefit ratio, first year rate of return, net present value, and internal-rate of return methods; Indirect costs and benefits of transport projects.

UNIT IV FINANCING OF ROAD PROJECTS

UNIT V LAND AND REAL ESTATE MARKETS
Understanding the institution of the private property; Development of land and real estate and property markets; Financial balance sheet of land development; Private ownership and social control over land.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 To express basic understanding of sociological processes generally as they relate to urban and regional planning.

CO2 To develop basic understanding of some of the key economic concepts and their application in planning.

CO3 To analyse the working real estate markets and evaluate the nature of these markets

CO4 To perform economic analysis of a transportation project

CO5 To apply various financing methods in road projects

CO6 To understand the process involved in real estate and property markets

TEXT BOOKS

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