

## DEPARTMENT OF PLANNING

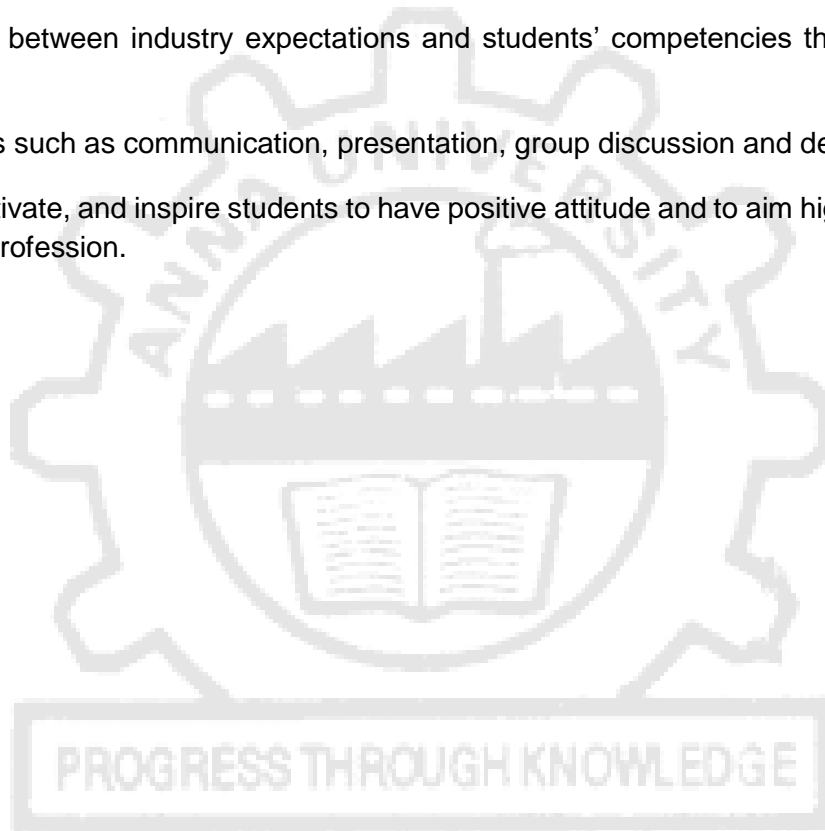
### ANNA UNIVERSITY, CHENNAI

#### **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 inter disciplinary 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.



ANNA UNIVERSITY: CHENNAI- 600 025  
UNIVERSITY DEPARTMENTS

REGULATION- 2023

CHOICE BASED CREDIT SYSTEM

MASTER OF PLANNING (M.PLAN) - FULL TIME

**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:

No.	Graduate Attribute	Programme Outcome
PO 1	Planning knowledge	An ability to apply the professional knowledge to solve the complex planning problems.
PO 2	Problem Analysis	An ability to independently carry out research /investigation and development work to solve practical problems in the field of urban and regional planning and development.
PO 3	Design/development of solutions	An ability to demonstrate a degree of mastery over the understanding of the functioning of human settlements at various levels and to articulate contextual planning interventions required for sustainable development.
PO 4	Knowledge of Urban and Regional Planning discipline	Understand, analyze, plan and implement the in-depth knowledge of urban and regional planning.
PO 5	Critical analyses of spatial planning	Critically analyze complex spatial planning problems and make innovative advances in a theoretical, practical and policy context.
PO 6	Conceptualization and evaluation of planning solutions	Conceptualize and solve spatial planning problems, evaluate potential solutions.

PEO / PO Mapping:

PROGRAMME EDUCATIONAL OBJECTIVES	PO1	PO2	PO3	PO4	PO5	PO6
I	3	3	3			3
II	3	3	1			3
III	3	2	2	3		2
IV	3	1	2		3	
V	3	3				

Mapping of Course Outcome and Programme Outcome

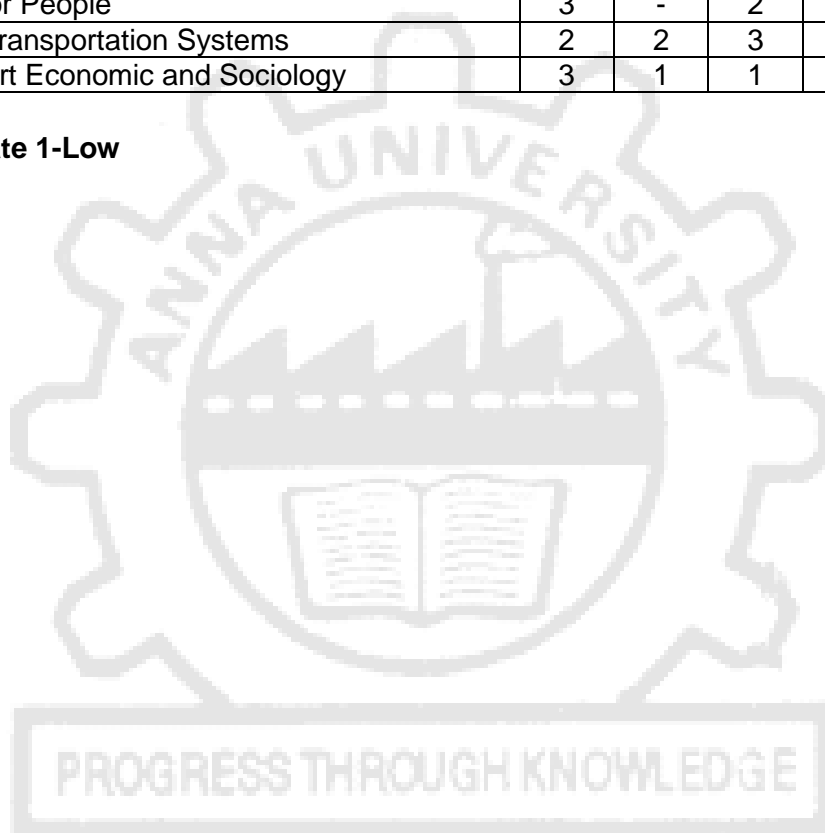
Year	Sem	Course Name	PO1	PO2	PO3	PO4	PO5	PO6
I	1	Introduction to Planning	3	2	1	2	2	3
		Planning History and Theory	3	3	2	2	3	3
		Socio-Economic & Political Dimensions in Planning	2	3	1	1	2	3
		Housing and Community Planning	3	2	2	2	1	2
		Planning Techniques	3	3	3	3	3	2
		GIS Modeling in Urban & Regional Planning	3	1	1	1	3	2
		Area Planning Studio	2	2	2	2	2	3
	2	Planning for Regions	3	3	2	3	3	2
		Planning Legislation and Professional Practice	2	2	3	1	2	2
		Environmental Planning	2	2	3	1	2	2
		Planning for Urban Utilities	3	3	2	3	3	2
		Traffic and Transportation Planning	2	2	3	1	2	2
		Professional Elective – I						
Urban Planning Studio	3	2	2	2	1	2		
II	3	Project Formulation, Implementation and Evaluation	3	2	2	-	3	-
		Planning Policies and Strategies	3	2	2	1	2	1
		Professional Elective – II						
		Regional Planning Studio	3	2	2	3	2	1
		Thesis Phase – I	3	3	3	3	3	3
		Internship Training	3	3	2	3	3	2
	4	Thesis Phase – II	3	2	2	3	2	1

3- High 2-Moderate 1-Low

### Mapping of Course Outcome and Programme Outcome : Professional Elective Courses

S. No.	Course Name	PO1	PO2	PO3	PO4	PO5	PO6
1.	Land Management and Real Estate Development	2	-	3	1	2	2
2.	Planning for Special Areas	3	2	2	-	3	-
3.	Urban Governance and Public Finance for Planning	3	2	1	2	2	-
4.	Urban Design	2	1	2	2	1	-
5.	Ecology and Natural Resource Planning	3	3	2	3	3	2
6.	Climate Resilient and Disaster Management	3	1	1	-	3	2
7.	Environmental Monitoring and Modeling	-	1	1	1	-	2
8.	Advanced GIS In Planning	3	-	2	3	3	2
9.	IoT Application in Planning	3	2	2	-	3	-
10.	Street for People	3	-	2	-	3	2
11.	Urban Transportation Systems	2	2	3	1	2	2
12.	Transport Economic and Sociology	3	1	1	-	3	2

3- High 2-Moderate 1-Low



**ANNA UNIVERSITY, CHENNAI**  
**UNIVERSITY DEPARTMENTS**  
**MASTER OF PLANNING (M.PLAN) – FULL TIME**  
**REGULATIONS 2023**  
**CHOICE BASED CREDIT SYSTEM**  
**CURRICULA AND SYLLABI FOR I TO IV SEMESTER**

**SEMESTER I**

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	TP3101	Introduction to Planning	PCC	3	0	0	3	3
2.	TP3102	Planning History and Theory	PCC	3	0	0	3	3
3.	TP3103	Socio-Economic and Political Dimensions in Planning	PCC	3	0	0	3	3
4.	TP3104	Housing and Community Planning	PCC	3	0	0	3	3
5.	TP3111	Planning Techniques	PCC	1	0	4	5	3
6.	TP3112	GIS Modeling in Urban and Regional Planning	EEC	1	0	4	5	3
7.	TP3121	Area Planning Studio	EEC	0	0	10	10	5
<b>TOTAL</b>				<b>14</b>	<b>0</b>	<b>18</b>	<b>32</b>	<b>23</b>

**SEMESTER II**

(Prerequisite- Pass in Area Planning Studio)

S. No.	COURSE CODE	COURSE TITLE	CATE GORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	TP3201	Planning for Regions	PCC	3	0	0	3	3
2.	TP3202	Planning Legislation and Professional Practice	PCC	3	0	0	3	3
3.	TP3203	Environmental Planning	PCC	3	0	0	3	3
4.	TP3204	Planning for Urban Utilities	PCC	3	0	0	3	3
5.	TP3211	Traffic and Transportation Planning	PCC	1	0	4	5	3
6.		Professional Elective I	PEC	3	0	0	3	3
7.	TP3221	Urban Planning Studio	EEC	0	0	10	10	5
<b>TOTAL</b>				<b>16</b>	<b>0</b>	<b>14</b>	<b>30</b>	<b>23</b>

**SEMESTER III**  
(Prerequisite- Pass in Urban Planning Studio)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	TP3301	Project Formulation, Implementation and Evaluation	PCC	3	0	0	3	3
2.	TP3302	Planning Policies and Strategies	PCC	3	0	0	3	3
3.		Professional Elective II	PEC	3	0	0	3	3
4.	TP3321	Regional Planning Studio	EEC	0	0	10	10	5
5.	TP3322	Thesis Phase – I	EEC	0	0	10	10	5
6.	TP3311	Internship Training	EEC	0	0	0	0	2
<b>TOTAL</b>				<b>09</b>	<b>0</b>	<b>20</b>	<b>29</b>	<b>21</b>

**\*\*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)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P/S		
1.	TP3421	Thesis Phase – II	EEC	0	0	22	22	11
<b>TOTAL</b>				<b>0</b>	<b>0</b>	<b>22</b>	<b>22</b>	<b>11</b>

**TOTAL NO. OF CREDITS: 78**

**PROFESSIONAL CORE COURSES (PCC)**

SI. No.	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	SEMESTER
			L	T	P/S			
1.	TP3101	Introduction to Planning	3	0	0	3	3	1
2.	TP3102	Planning History and Theory	3	0	0	3	3	1
3.	TP3103	Socio-Economic and Political Dimensions in Planning	3	0	0	3	3	1
4.	TP3104	Housing and Community Planning	3	0	0	3	3	1
5.	TP3111	Planning Techniques	1	0	4	5	3	1
6.	TP3201	Planning for Regions	3	0	0	3	3	2
7.	TP3202	Planning Legislation and Professional Practice	3	0	0	3	3	2
8.	TP3203	Environmental Planning	3	0	0	3	3	2
9.	TP3204	Planning for Urban Utilities	3	0	0	3	3	2

10.	TP3211	Traffic and Transportation Planning	1	0	4	5	3	2
11.	TP3301	Project Formulation, Implementation and Evaluation	3	0	0	3	3	3
12.	TP3302	Planning Policies and Strategies	3	0	0	3	3	3
<b>TOTAL CREDITS</b>							<b>36</b>	

**PROFESSIONAL ELECTIVE COURSES (PEC)**

S. NO.	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	SEMESTER
			L	T	P/S			
1.	TP3001	Land Management and Real Estate Development	3	0	0	3	3	3
2.	TP3002	Planning for Special Areas	3	0	0	3	3	3
3.	TP3003	Urban Governance and Public Finance for Planning	3	0	0	3	3	3
4.	TP3004	Urban Design	3	0	0	3	3	3
5.	TP3005	Ecology and Natural Resource Planning	3	0	0	3	3	3
6.	TP3006	Climate Resilient and Disaster Management	3	0	0	3	3	3
7.	TP3007	Environmental Monitoring and Modeling	3	0	0	3	3	3
8.	TP3008	Advanced GIS in Planning	1	0	4	5	3	3
9.	TP3009	IoT Application in Planning	3	0	0	3	3	3
10.	TP3010	Street for People	3	0	0	3	3	3
11.	TP3011	Urban Transportation Systems	3	0	0	3	3	3
12.	TP3012	Transport Economic and Sociology	3	0	0	3	3	3

**\*Credits for 2 Professional Electives to be chosen**

**EMPLOYABILITY ENHANCEMENT COURSES (EEC)**

SL. NO.	COURSE CODE	COURSE TITLE	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS	SEMESTER
			L	T	P/S			
1.	TP3112	GIS Modeling in Urban and Regional Planning	1	0	4	5	3	1
2.	TP3121	Area Planning Studio	0	0	10	10	5	1
3.	TP3221	Urban Planning Studio	0	0	10	10	5	2
4.	TP3321	Regional Planning Studio	0	0	10	10	5	3
5.	TP3322	Thesis Phase - I	0	0	10	10	5	3
6.	TP3311	Internship Training	0	0	10	10	2	3
7.	TP3421	Thesis Phase - II	0	0	22	22	11	4
<b>TOTAL CREDITS</b>							<b>36</b>	

### SUMMARY

Sl. No	Subject Area	Credits per Semester				Credits Total
		I	II	III	IV	
1.	PCC	15	15	6	0	36
2.	PEC	0	0	6	0	6
3.	EEC	8	5	12	11	36
	<b>Total</b>	<b>23</b>	<b>20</b>	<b>24</b>	<b>11</b>	<b>78</b>





**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**

Need for Hierarchy of plans – Types and Scope of various scales of plans –Perspective Plan, Regional Plan – Block Development Plan - Structural Plan, Master Plan, Detailed Development Plan/Zonal Plan/Town Planning Schemes – Local Area Plan - Layouts – Significance of plans – Case studies.

**UNIT III PLANNING PRINCIPLES 9**

Principles in planning - Rationality in planning, - Blueprint and process mode - Disjointed incremental mode of planning - Normative versus functional mode of planning - Pragmatism in planning; Regime theory and urban politics – Synoptic Planning – Advocacy Planning – Radical Planning – Transactive Planning – Trade Off – Optimization Technique - Current Planning Practice in India and the way forward.

**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.

**TAL : 45 PERIODS****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**

- Hiraskar G.K (2012), "Fundamentals of Town Planning", Dhanpat Rai Publications.
- John Ratcliffe (1985), "An Introduction to Town and Country Planning", Hutchinson.
- Anthony James Catanese and James Synder C (1988), "Introduction to Urban Planning", McGraw-Hill, Inc,US.
- Davidoff.P,(1965): Advocacy and Pluralism in Planning, Journal of American Institute of Planners, Vol. 31. USA.
- Amiya Kumar Das (2007), "Urban Planning in India", Rawat Pubns.

**REFERENCES**

- Government of India (2015), "Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I&II, Town and Country Planning Organization, Ministry of Urban Development, New Delhi.
- Palermo, Pier Carlo (2010), "Spatial Planning and Urban Development: Critical Perspective", Springer.
- Kamal Uddin and Bhuiyan Monwar Alam (2023), "Public Participation Process in Urban Planning: Evaluation Approaches of Fairness and Effectiveness Criteria of Planning Advisory Committees", Routledge.
- Biswas Hiranmay (2012), "Principles of Town Planning and Architecture", VAYU Education of India.
- Peter Hall and Mark Tewdwr-Jones (2019), "Urban and Regional Planning", Routledge; 6th edition.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	2	3	1	3
CO2	3	3	3	2	3	2
CO3	3	1	2	-	3	-
CO4	2	-	2	3	2	2
CO5	3	1	-	-	3	1
CO6	3	-	1	-	-	2
<b>Average</b>	3	2	2	3	2	2

H-High M-Moderate L-Low

TP3102

PLANNING HISTROY AND THEORY

L T P/S C  
3 0 0 3

**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 – Medieval 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**

City as an organism: A physical entity, social entity, economic entity and political entity – Garden City Movement - Geddisian Triad – Conurbation – Tony Garnier's: Industrial City – Factory Town – La-Ville Contemporaries – Radburn City – Broadacre city – Arcology – Lewis Mumford's views on new social order - Theory of William Alonso on location – Public Choice Theory – Urban Imageability – Serial Vision – Eyes on the Street - Proxemics Theory – Defensible Space and other latest theories.

**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**

1. Campbell, Scott and Fainstein, S.Susan (1996), "Readings in Planning Theory", Blackwell Publishing, London.

2. Faludi.A (1973), "Planning Theory", Pregamon Press, Oxford.
3. Lewis Mumford (1968), "The City in History: Its Origins, its transformations and its prospects", Harcourt Brace International.
4. Binode Behari Dutt (2009), "Town Planning in Ancient India", Thacker Spink and CO., Calcutta.
5. John Julius Norwich (2014), "Cities That Shaped the Ancient World", Thames & Hudson.

## REFERENCES

1. Galloway.D.T Riad, G.M (1977), "Planning Theory in Retrospect: The process of Paradigm Change", Journal of American Planning Association.
2. Robert A.Beauregard (2020), "Advanced Introduction to Planning Theory", Edward Elgar Publication.
3. A.E.J.Morris (1994), "History of Urban Form Before the Industrial Revolution", Longman Publication.
4. Peter Clark (2013), "The Oxford Handbook of Cities in World History", Oxford University Press.
5. Jin, Wu (1993), "The historical development of Chinese urban morphology." Planning Perspectives.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOME					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	2	3	2
CO2	3	3	2	1	2	3
CO3	3	1	3	-	3	-
CO4	3	-	2	-	3	2
CO5	2	3	3	2	3	-
CO6	3	3	2	-	1	3
<b>Average</b>	3	2	2	2	3	3

H-High M-Moderate L-Low

<b>TP3103</b>	<b>SOCIO-ECONOMIC AND POLITICAL DIMENSIONS IN PLANNING</b>	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

## 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

9

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 cities – urban structure and urbanization – city sprawl – Sub-urbanism and Gentrification, Rural - Urban continuum - Social and economic Impacts of urban growth and expansion - Case Studies.



## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOME					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	3	1	3	1	3
CO2	3	3	2	2	2	3
CO3	2	3	2	1	1	2
CO4	3	2	1	-	-	3
CO5	2	1	1	1	2	3
CO6	3	3	2	-	3	3
<b>Average</b>	3	3	2	2	2	2

H-High M-Moderate L-Low

TP3104

**HOUSING AND COMMUNITY PLANNING**

<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

### 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                      9**

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                      9**

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                      9**

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                      9**

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****9**

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**

1. Bridget Franklin (2006), "Housing Transformations Shaping the Space of Twenty-First Century Living", Routledge Publishers, UK.
2. V. Gandotra, M. Shukul, N. Jaju and N. Jaiswal (2009), "Housing : Changing Needs and New Directions", , Authors press.
3. Cedric Pugh (1990), "Housing and Urbanisation- A study of India", Sage Publications, New Delhi.
4. Durand Lasserre, Royston L (2002), "Holding Their Ground: Secure Land Tenure for the Urban Poor in Developing Countries", Earthscan Publication, UK.
5. Dr. Adv. Harshul Savla (2021), Affordable Housing : Roof for Every Indian, Notion Press; 1st edition.

**REFERENCES**

1. Gerard Van Bortel, Vincent Gruis (2018), "Affordable Housing Governance and Finance: Innovations, partnerships and comparative perspectives", Routledge; 1st edition.
2. Sasha Tsenkova (2021), Cities and Affordable Housing: Planning, Design and Policy Nexus, Taylor & Francis Ltd; 1st edition.
3. Padmini Ram , Malcolm Harper (2020), "The Affordable Housing Market In India: Institutional Constraints, Informal Sector And Privatisation", Routledge.
4. Swetha Rao Dhananka (2020), "Housing and Politics in Urban India: Opportunities and Contention", Cambridge University Press.
5. Dr. Rajashree J. Jawale (2023), "Right to Housing in India", Notion Press.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOME					
	PO1	PO2	PO3	PO4	PO5	PO6
<b>CO1</b>	2	3	2	2	1	3
<b>CO2</b>	3	3	3	1	1	2
<b>CO3</b>	2	2	2	1	2	2
<b>CO4</b>	3	1	3	2	2	3
<b>CO5</b>	3	2	2	2	1	2
<b>CO6</b>	2	2	3	3	1	3
<b>Average</b>	3	2	3	2	1	3

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 and Non-sampling Error- field study in data collection and analysis- - introduction to software.

**UNIT II STATISTICAL INFERENCE 20**

Elementary Probability – Concepts and Definitions – Probability Distributions – Sampling Distribution – Theory of Estimation and Testing of Hypothesis – Tests for Means and Proportion – Non-Parametric Tests – Correlation and Regression Analysis, Time series analysis– hands on training in application of software.

**UNIT III DEMOGRAPHIC ANALYSIS 10**

Distribution and Structure of Population – Demographic characteristics of Population and their Measures – Methods of Population Projection – Migration Analysis – Description and Construction of Life Tables.

**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**

1. Agarwal B, L (2007), "Programmed Statistics", New Age International Publishers, New Delhi.



2. Denzin, Norman K. and Yvonna S. Lincoln (2011), "Sage Handbook of Qualitative Research", 4th edition.
3. Booth W., Colomb G.G., Williams J. M., J. Bizup, and Fitzgerald W.T. (2016), "The Craft of Research". Chicago: University of Chicago Press.
4. Gaber J, (2020), "Qualitative Analysis for Planning and Policy: Beyond the Numbers", New York: Routledge.
5. Fowler F (2013), "Survey Research Methods", Thousand Oaks, CA: Sage.

## REFERENCES

1. Allen, R, and C. S. Slotterback (2017), "Building immigrant engagement practice in urban planning: the case of Somali refugees in the Twin Cities", Journal of Urban Affairs.
2. Hsieh, H.F., S. Shannon (2005), "Three approaches to qualitative content analysis", Qualitative Health Research 15, 9: 1277-88.
3. Skodval, M. and Cornish, F (2015), "Qualitative Research for Development: A Guide for Practitioners", Rugby, UK: Practical Action Publishing.
4. Leech B.L (2002), "Asking questions: techniques for semi-structured interviews", Political Science and Politics 35, 4: pages 665-668.
5. Bryman and E. Bell (2011), "Interviewing in qualitative research", Business Research Methods, Oxford: Oxford University Press.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOME					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	2
CO2	3	3	3	3	2	2
CO3	3	3	3	3	2	1
CO4	3	3	3	3	2	2
CO5	3	3	3	3	2	2
CO6	3	1	1	1	-	1
<b>Average</b>	3	3	3	3	2	2

H-High M-Moderate L-Low

TP3112

**GIS MODELING IN URBAN AND REGIONAL PLANNING**

<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
1	0	4	3

## 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

15

Classification of spatial and non-spatial data, Ellipsoid and Geoid, Projection and Coordinate systems, Preparation of map – Purpose of the map, Topographic sheets, Topic, Format, Scale, Audience, Production and Reproduction of map, Data base concepts – Primary key, Foreign Key, ER diagram, Passive and Active Remote Sensing, Image Processing – Spectral Signature Curve, GPS, Aerial Photograph, Satellite Imagery, LIDAR and Drones in Physical Planning, Commercial and open-source GIS packages.

**UNIT II DATA INPUT 15**

Defining the objectives of GIS planning problems, Identification of required spatial data layers, GIS Data Models and Data Input, Attributes and Levels of Measurement, Data Sources, Ground and Remote Sensing survey, Map scanning Registration, Georeferencing and digitization, , Adding attribute data file – Topology generation – Joining attribute data to its geographic features Concepts of RDBMS, Raster Data Model, Data Encoding, Data Compression, Vector Data Model, Raster Vs. Vector Comparison, File Formats for Raster and Vector, Data conversion between Raster and vector.

**UNIT III RASTER AND VECTOR DATA ANALYSIS 15**

Vector Data Analysis: Topological Analysis, point-in-polygon, Line-in-polygon, Polygon-in-Polygon, Proximity Analysis: buffering, Thiessen Polygon, Raster Data analysis: Local, Neighborhood and Regional Operations, Non-topological analysis Attribute data Analysis- concepts of SQL– ODBC, cadastral digitization, land use plan preparation.

**UNIT IV SPATIAL ANALYSIS USING GIS 15**

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 APPLICATIION 15**

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.

**TEXT BOOKS**

1. Michael Demers (2008), "Fundamentals of Geographic Information Systems", John Wiley & Sons Inc; 4th edition.
2. Anji Reddy.M.(2012), "Text book of Remote Sensing and Geographical Information Systems", B.S. Publications, Hyderabad.
3. Michael Law and Amy Collins (2022), "Getting to Know ArcGIS Desktop", ESRI Press, USA.
4. MD Kennedy (2013), 'Introducing Geographic Information Systems with ArcGIS - A Workbook Approach to Learning GIS', John Wiley & Sons Inc; 3rd edition.
5. Paul Longley and Michael Betty (1996), Spatial Analysis – Modeling in GIS Environment, John Wiley.

**REFERENCES**

1. Michele Campagna (2005), "GIS for Sustainable Development", Taylor and Francis.
2. Pinde Fu (2020) , "Getting to Know Web GIS", ESRI Press.
3. Kathryn Keranen and Robert Kolvoord (2017), "Making Spatial Decisions Using ArcGIS Pro: A Workbook", ESRI Press.
4. Victor Mesev (2007), "Integration of GIS and Remote Sensing", John Wiley.
5. Harsan Karimi (2001), "Handbook of Research on Geo-informatics, GI Global.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOME					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	1	-	3	2
CO2	2	2	1	-	3	1
CO3	3	3	2	2	2	2
CO4	1	1	1	-	3	2
CO5	1	1	2	1	3	-
CO6	3	2	3	1	3	1
<b>Average</b>	2	2	2	1	3	2

H-High M-Moderate L-Low

TP3121

**AREA PLANNING STUDIO**

**L T P/S C**  
**0 0 10 5**

### 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

1. Dutsche Gesellschaft fur International Zusammenarbeit (2012), "Land Use Planning: Concepts, Tools and Application", Ministry for Economic Cooperation and Development, Germany.
2. Government of Tamil Nadu (1971), "Tamil Nadu Town and Country Planning Act, 1971", Directorate of Town and Country Planning, TN.
3. Thomas Russ (2009), "Site Planning and Design Handbook", Mcgraw Hill Publications.
4. Singh K (2009), "Rural Development Principles, Policies and Management", Sage Publications.
5. N.Narayanasamy (2009), "Participatory Rural Appraisal: Principles, Methods and Application", Sage Publications.

## REFERENCES

1. Government of India (2015), "Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I&II, Town and Country Planning Organisation, Ministry of Urban Development, New Delhi.
2. Ward.S.V (2004), "Planning and Urban Change", Sage Publication.
3. Tiesdell (2012), "Shaping Places: Urban Planning, Design and Development", Oxon, Routledge.
4. Parolek (2008), "Form Based Codes: A Guide for Planners, Urban Designers, Municipalities and Developers", New Jersey, Wiley
5. Philip Berke (2006), "Urban Land Use Planning", University of Illinois Press.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
<b>CO1</b>	2	2	3	1	3	2
<b>CO2</b>	3	3	2	2	1	1
<b>CO3</b>	3	2	1	1	2	2
<b>CO4</b>	2	3	2	3	2	3
<b>CO5</b>	3	2	2	2	2	3
<b>CO6</b>	2	1	3	2	2	1
<b>Average</b>	3	2	2	2	2	2

H-High M-Moderate L-Low

TP3201

PLANNING FOR REGIONS

L T P/S C  
3 0 0 3

## OBJECTIVES

- 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**

Basic Concepts in Regions, Defining a region: fluidity and purposiveness, Typology of Regions: Resource Regions – corridors as region - Mega, Macro, Meso, and Micro Regions – objective - Delineation of Regions (Regionalisation) – Evolution of Regional Planning in India – Regional Plan (Preparation, Publication and Sanction) Rules, 2021.

**UNIT III REGIONAL THEORIES AND PRINCIPLES 9**

Growth pole and growth center- Core periphery concept – Central place theory-Agricultural and use model – graph theory – rank size rule - Losch Model – cumulative causation theory – Rostow's model - Models of industrialization and regional development- Resource allocation models - Theories of Regional Economic Divergence – Principles of regional planning: Principle of Vertical Unity of Phenomena, Horizontal Spatial Unity, Spacetime Continuum, etc.

**UNIT IV TOOLS AND TECHNIQUES 9**

Techniques for the delineation metropolitan regions – gravity analysis – flow analysis - Perroux theory – bisection methods – weighted Index – optimization analysis – Input-Output analysis – carrying capacity – Thiessen polygon method – multi-criteria - fixed index method – other emerging tools & techniques – case studies.

**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**

1. Glasson.J (1974), "An Introduction to Regional Planning", London, Taylor and Francis, Ltd.
2. Rengasamy, S.(2009), "Types of Regions and Regionalization of India", Regional planning part II. UNCRD.
3. Mishra R.P. (2002), "Regional Planning: Concepts, Techniques, Policies and Case Studies", Concept Publishing Company, New Delhi.
4. Schaffar A and Dimou (2010), "Rank-Size City Dynamics in China and India", Regional Studies.
5. Gans, Herbert (1994), 'Urbanism and Sub-urbanism as Ways of Life: A Re-evaluation of Definitions.' In People, Plans, and Policies, 1994.

**REFERENCES**

1. Yupo Chan (2011), "Locational Theory and Decision Analysis – Analytics of Spatial Information Technology", Springer.

2. Dewin G.Flittie (1970), “ The Delineation of a Region-an Alternative Technique”, Journal of Growth and Change, Wiley.
3. National Capital Regional Planning Board (2005), “ National Capital Region regional plan”, New Delhi.
4. Government of India (2015), “Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I&II, Town and Country Planning Organization, Ministry of Urban Development, New Delhi.
5. Klapka, P., Halas, M. and Tonev, P. (2013), “Functional regions: concept and types”, International Colloquium on Regional Sciences. Brno: Masaryk University.

### CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	2	3	2
CO2	3	2	3	2	1	1
CO3	2	3	2	3	3	1
CO4	3	1	1	3	1	2
CO5	3	3	2	1	2	3
CO6	3	1	1	3	3	2
<b>Average</b>	3	2	2	2	2	2

H-High M-Moderate L-Low

TP3202

**PLANNING LEGISLATION AND PROFESSIONAL PRACTICE**

**L T P/S C**  
**3 0 0 3**

### 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.

**CONCEPT AND THE RELEVANCE OF THE CONSTITUTION AND PLANNING LEGISLATION 9**

#### UNIT I

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 10**

Town and Country Planning Acts and their Review - Urban Local Bodies Laws, Legislations for Panchayats, Municipalities, Municipal corporations, Interface between the Planning and Local Bodies Acts - Local bodies Finance, Revenue, Expenditure and Resource Mobilization - The Constitution (73rd and 74th Amendment) Act, 1992 and their implications on planning and development.

**UNIT III                      LAWS INCIDENTAL TO PLANNING AND THEIR IMPLICATIONS                      10**

Urban Development Authorities Acts, Right to Fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act, 2013, Housing Acts including Slum Housing, Acts related to the Environment, Rent Control Acts, The Tamil Nadu Real Estate (Regulation and Development) Act, 2016 - Law relating Water Supply and Sewerage, Electricity, Registration, Parks, Play Fields and Open Spaces, Places of Public Resorts – The Ancient Monuments and Archaeological Sites and Remains Act – Hill region development act - HACA.

**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.

**TEXT BOOKS**

1. Government of Tamil Nadu (1971), “Tamil Nadu Town and Country Planning Act, 1971”, Directorate of Town and Country Planning, TN.
2. Ministry of Rural Development (2013), Government of India, ‘Right to Fair Compensation and Transparency in Land Acquisition and Rehabilitation and Resettlement Act.
3. Government of Tamil Nadu (2019), “Combined Development and Building Rules”, Directorate of Town and Country Planning, TN.
4. Government of Tamil Nadu (1920), “Tamil Nadu District Municipalities Act”, Department of Municipal Administration and Water Supply, Chennai.
5. The Government of India (1992), The Constitution (73rd and 74th Amendment) Act.

**REFERENCES**

1. Ministry of Home Affairs (2004), “Model Amendment in Town and Country Planning Legislations, Regulation for Land Use Zoning and Building Byelaws for Structural Safety”, Government of India, New Delhi.
2. The Government of India (1986), Ministry of Environment and Forest, “The Environment (Protection) Act”.
3. Department of Rural Development (1994), Government of Tamil Nadu, “Tamil Nadu Panchayat Act,”.
4. Government of India (2015), “Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I&II, Town and Country Planning Organization, Ministry of Urban Development, New Delhi.
5. Government of Tamil Nadu (2016), “The Tamil Nadu Real Estate (Regulation and Development) Act.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	2	-	3
CO2	3	2	1	1	-	2
CO3	2	2	3	2	2	2
CO4	3	2	3	3	1	2
CO5	2	1	3	1	2	3
CO6	1	3	3	1	-	1
<b>Average</b>	2	2	2	2	2	2

H-High M-Moderate L-Low

TP3203

**ENVIRONMENTAL PLANNING**

**L T P/S C**  
**3 0 0 3**

### 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 9**

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 9**

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 9**

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 9**

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 9**

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

1. Aseesh Kumar Maitra (1998), "Urban Environment in Crisis", New Age International (P) Limited, Publishers, New Delhi.
2. Avijit Gupta and Mukul G. Asher (1997), "Environment and the Developing World", John Wiley & Sons, New York, USA.
3. Charles H. Eccleston (2011), "Environmental Impact Assessment: A Guide to Best Professional Practices" CRC Press.
4. Rao P.K (2001), 'Sustainable Development', Blackwell Publishers, Massachusetts, USA.
5. Christopher S. and Mark Y (2007), "Environmental Management Systems", (third edition), Earthscan Publications, First South Asian Edition.

## REFERENCES

1. Madu C.N (2007), "Environmental Planning and Management", Imperial College Press, (Chapters 2, 3, 4, 6, 7, 8, 10), .
2. John Randolph (2012), "Environmental Land Use Planning and Management" (2nd Edition). Washington, D.C.: Island Press.
3. Tom Daniels (2014), "Environmental Planning Handbook: For Sustainable Communities and Regions", Routledge.
4. Walter A.Rosenbaum (2019), "Environmental Politics and Policy", CQ Press.
5. James E.Salzman (2019), "Environmental Law and Policy(Concepts and Insights), Foundation Press.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	2	-	3
CO2	3	2	1	1	-	2
CO3	2	2	3	2	2	2
CO4	3	2	3	3	1	2
CO5	2	1	3	1	2	3
CO6	1	3	3	1	-	1
<b>Average</b>	2	2	2	2	2	2

H-High M-Moderate L-Low

**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 6**

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 9**

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 12**

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 9**

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 9**

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.

**TEXT BOOKS**

1. Simon Guy, Simon Marvin, Will Medd, Timothy Moss (2012), "Shaping Urban Infrastructures: Intermediaries and the Governance of Socio-Technical Networks", Routledge.

- Ramesh G, Vishnu Prasad Nagadevara, Gopal Naik, Anil Suraj (2010), "Urban Infrastructure and Governance", Routledge.
- Sybil Derrible (2019), "Urban Engineering for Sustainability", The MIT Press.
- Prasanna K. Mohanty (2016), "Financing Cities in India: Municipal Reforms, Fiscal Accountability and Urban Infrastructure", Sage Publications India Private Limited.
- Colin Turner (2018), "Regional Infrastructure Systems: The Political Economy of Regional Infrastructure", Edward Elgar Publishing Ltd.

## REFERENCES

- Elia Ciccotelli, Benigno Calò (2012), "Spatial Planning: Strategies, Developments & Management (Urban Developments and Infrastructure)", Nova Science Publishers Inc; UK ed. Edition.
- James V. Parkin, Deepak Sharma (1999), "Infrastructure Planning", Thomas Telford Ltd.
- Munawwar Alam (2010), "Municipal Infrastructure Financing: Innovative Practices from Developing Countries: 2 (Commonwealth Secretariat Local Government Reform Series)", Commonwealth Secretariat.
- Michael Humphries QC (2015), National Infrastructure Planning Handbook.
- Sudha V, Krishna Reddy (2016), "Public Private Partnerships in Infrastructure Sector", BS Publications; St ed. Edition.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	2	3	2
CO2	3	2	3	2	1	1
CO3	2	3	2	3	3	1
CO4	3	1	1	3	1	2
CO5	3	3	2	1	2	3
CO6	3	1	1	3	3	2
<b>Average</b>	3	2	2	2	2	2

H-High M-Moderate L-Low

TP3211

**TRAFFIC AND TRANSPORTATION PLANNING**

<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
<b>1</b>	<b>0</b>	<b>4</b>	<b>3</b>

## 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

15

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**

Requirement for traffic surveys – Delineation of zones – Classified volume counts – Origin and destination studies – Parking surveys – Speed and delay studies – Traffic and travel characteristics – Methods of survey and analysis – Field studies – Traffic management – Transport system management- field survey on different transportation surveys.

**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**

1. Kadiyali L. R (1966),“Traffic Engineering and Transportation Planning”, Khanna Publications. New Delhi.
2. Dimitriou H.T (1992), “Urban Transport Planning, A Development Approach”, Routledge, London.
3. Michael J.Bruton (1985), “An Introduction to Transportation Planning”, Hutchinson, London.
4. Sarkar, P.K., Maitri, V. and Joshi, G.J (2014), “Transportation Planning: Principles,Practices and Policies”, Prentice Hall India Learning Private Limited, New Delhi.
5. Verma, A. and Ramanayya, T.V (2014), “Public Transport Planning and Management in Developing Countries”, CRC Press, Taylor and Francis Group, London.

**REFERENCES**

1. ITE Hand Book, Highway Engineering Hand Book, Mc Graw - Hill.
2. AASHTO A Policy on Geometric Design of Highway and Streets
3. Indo-HCM, 2018 and relevant IRC codes
4. Chakraborty and Das (2009), ‘Principles of Transportation Engineering’, PHI Learning, India.
5. Michael D. Meyer, Eric J. Miller (2001), ‘Urban Transportation Planning: A Decision-Oriented Approach’, McGraw-Hill Higher Education.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	2	-	3
CO2	3	2	1	1	-	2
CO3	2	2	3	2	2	2
CO4	3	2	3	3	1	2
CO5	2	1	3	1	2	3
CO6	1	3	3	1	-	1
<b>Average</b>	2	2	2	2	2	2

H-High M-Moderate L-Low

TP3221

URBAN PLANNING STUDIO

L T P/S C  
0 0 10 5

### 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.

**TEXT BOOKS**

- Alexander Garvin, "The Planning Game: Lessons from Great Cities, W.W.Norton & Company, USA, 2013.
- Shirley Ballaney and Bimal Patel, "Using the Development Plan – Town Planning Scheme, Mechanism to Build Urban Infrastructure, India Infrastructure Report, Oxford University Press, New Delhi, 2009.
- R.G.Gupta, "Planning and Development of Towns", South Asia Books, 1983.
- Ryan Gravel, "Where We Want to Live: Reclaiming Infrastructure for a New Generation of Cities", St.Martin's Press, 2016.
- Paramita Majumdar, "Dynamics of Urban Development", Abhijet Publications, 2004.

**REFERENCES**

- Government of India (2015), "Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I&II, Town and Country Planning Organisation, Ministry of Urban Development, New Delhi.
- Government of India (2015), "Formulation of GIS Based Master Plan for AMRUT Cities", Town and Country Planning Organisation, Ministry of Housing and Urban Affairs, New Delhi.
- Government of India (2021), "Master Plan for Delhi – 2021", Delhi Development Authority, Ministry of Urban Development, New Delhi.
- Pratheep Moses K, Sudharsanamurthy P and Madhivadhani K (2021), "Methodology for the Preparation of GIS Based Master Plan", Tierazliche Praxis.
- Vinod Kumar T.M. (2022), "Smart Master Planning for Cities: Case Studies on Digital Innovations", Advances in 21<sup>st</sup> Century Human Settlements, Springer.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	3	1	1	2
CO2	2	2	1	2	1	1
CO3	2	1	2	3	3	2
CO4	3	3	2	3	2	2
CO5	3	3	2	2	2	3
CO6	1	2	3	2	1	1
<b>Average</b>	2	2	2	2	2	2

H-High M-Moderate L-Low

<b>TP3301</b>	<b>PROJECT FORMULATION, IMPLEMENTATION AND EVALUATION</b>	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

**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.

<b>UNIT I</b>	<b>INTRODUCTION TO PROJECT FORMULATION</b>	<b>9</b>
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.		
<b>UNIT II</b>	<b>PROJECT APPRAISAL</b>	<b>9</b>
Time and value of money – Investment criteria- Internal rate of return, Net Present Value, Cost-Benefit analysis, and Social Cost Benefit Analysis, Standard oriented cost control techniques; Techno-economic analysis of projects – Project risk analysis–Appraisal of marketing strategy – Pricing and credit worthiness and management capabilities.		
<b>UNIT III</b>	<b>PROJECT MANAGEMENT AND PRE-IMPLEMENTATION PLANNING PHASE</b>	<b>9</b>
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.		
<b>UNIT IV</b>	<b>PROJECT FINANCING AND IMPLEMENTATION</b>	<b>9</b>
Funding options for urban development projects– Tender procedure– Tamil Nadu transparency in tender rules-Organizational aspects in project management–Network techniques for project management.		
<b>UNIT V</b>	<b>PROJECT MONITORING AND EVALUATION</b>	<b>9</b>
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.

### **TEXT BOOKS**

1. Chandra, P (2004), "Projects Planning, Analysis, Financing, Implementation & Review" Tata McGraw Hill.
2. Plotnick, F. L., O'Brien, J. J (2010), "CPM in Construction Management", McGraw-Hill Professional.
3. Mattoo, P.K.(1978),"Project Formulation in Developing Countries, South Asia Books," New Delhi.
4. Johansson, P. and Kriström, B.(2016), "Cost-Benefit Analysis for Project Appraisal", Cambridge University Press, Cambridge.
5. Gudda, P.'A (2011), "Guide to Project Monitoring and Evaluation," Author House, Bloomington, Indiana.

### **REFERENCES**

1. The Charter ed Institute of Building (2010), "Code of Practice for Project Management for Construction and Development", Wiley-Blackwell.
2. Michael Bambarger and Eleanor Hewitt (1988), 'Monitoring and Evaluating, Urban Development Programmes : A Hand Book for Program Managers and Researchers, The World Bank
3. Kurowski Lech, David Sussman. (2011),"Investment Project Design – A Guide to Financial and Economic Analysis with Constraints" John Wiley & Sons publications.
4. Albert Lester (2007), "Project Management, Planning and Control", Butterworth Heinemann Publishing House.

5. Harold R.Kerzert (2013), "Project Management: A systems approach to planning, scheduling and controlling", John Wiley & Sons, New Delhi.

### CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	-	-	-	3	-
CO2	-	-	-	-	3	-
CO3	3	-	-	-	2	-
CO4	-	2	-	-	-	-
CO5	-	-	2	-	-	-
CO6	-	-	-	-	-	-
<b>Average</b>	3	2	2		3	

H-High M-Moderate L-Low

TP3302

**PLANNING POLICIES AND STRATEGIES**

**L T P/S C**  
**3 0 0 3**

### 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 constrains 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 9**

Nature, Scope, Significance and Contextual Perspectives in Policy Making Approaches and Models - Power Approaches to Policy-Making, Institutional Approaches to Policy Making, Strategic Planning Approach for Improving Public Policy - Rational Approach and Rationality Model - Decision Making Process and Techniques.

### **UNIT II POLICY MAKING – POWERS AND ROLES 9**

Structure of Power and Public Policy-Making Process; Power and Role of Non-Officials in Policy-Making; Policy-Making Power within the Executive; Intergovernmental Relations and Public Policy Issues.

### **UNIT III POLICY IMPLEMENTATION 9**

Public Policy Implementation: Approaches and Models; Inter-Organizational Relations and Public Policy Implementation; Public Policy Delivery Agencies and Implementers - Public Policy Implementation: Gaps and Problems, Implementation of Global Policy Agendas.



**UNIT IV POLICY EVALUATION****9**

Approaches and Techniques; Policy Evaluation: Techniques and Approaches; Policy Evaluation: Role, Process and Criteria; Policy Performance: Evaluating Impact.

**UNIT V CASE STUDIES OF SCHEMES & POLICIES****9**

Reforms in Urban Planning capacity in India – National Urban Policy Framework - National Urban Sanitation Policy - Swachh Bharat Mission - National Urban Housing & Habitat Policy 2007 - Pradhan Mantri Awas Yojana (PMAY) – Housing for all (Urban) – National Urban Rental Housing Policy -National Policy for Urban Street Vendors-2009 - Deen Dayal Antyodaya Yojana – National Urban Livelihood Mission (DAY-NULM) - National Environmental Policy 2006 - Heritage City Development and Augmentation Yojana (HRIDAY) - National Urban Transport Policy 2006, National Water Policy 2002 and 2012 (draft) Policy on Energy etc.

**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.

**TEXT BOOKS**

1. Kent E. Portney (1986), 'Approaching Public Policy Analysis: An Introduction to Policy and Programme Research', Prentice Hall- Gale.
2. Sapru R. K (2011), "Public Policy: Art and Craft of Policy Analysis", PHI Learning Pvt. Ltd-New Delhi.
3. Agnihotri .V. K (1995), 'Public Policy, Analysis and Design', Concept Publishing.
4. William N. Dunn (2015), 'Public Policy Analysis', Pearson Education.
5. Carmon and Susan S.Fainstein (1994), "Policy, Planning, and People: Promoting Justice in Urban Development", University of Pennsylvania Press.

**REFERENCES**

1. James E.Vestal (2013), "Planning for Change: Industrial Policy and Japanese Economic Development 1945-1990", Clarendon Press.
2. Pengkun Wu (2020), "Population Development Challenges in China: Family Planning Policy and Provincial Population Difference", Springer.
3. Hobart A.Burch (1997), "Basic Social Policy and Planning: Strategies and Practice Methods", Routledge.
4. Richard E.Klosterman, Kerry Brooks and Joshua Druker (2018)," Planning Support Methods Urban and Regional Analysis and Projection", Rowman & Littlefield.
5. John MacDonald, Charles Branas and Robert Stokes (2019), "Changing Places: The Science and Art of New Urban Planning", Princeton University Press.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	2	1	1	1
CO2	3	2	3	1	2	3
CO3	1	1	2	2	-	1
CO4	1	1	2	2	2	1
CO5	3	2	3	1	2	3
CO6	3	2	1	3	1	1
<b>Average</b>	2	2	2	2	2	2

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

1. Amitabh Kundu and Varghese.K (2010), "Regional Inequality and Inclusive Growth in India under Globalization", Institute of Human Development.
2. Kulshrestha (2012), "Urban and Regional Planning in India: Handbook for Professional Practice", S.K.Sage Publications.
3. Roy.A and OngA (2011), "Worlding Cities: Asian Experiments and the Art of being Global", Wiley Blackwell,London.
4. Walter Isard (1960), "Methods of Regional Analysis: An Introduction to Regional Science", MIT Press, Cambridge.
5. David A.Plane (2008), "Regional Planning", Cheltenham Edward Elgar.

### REFERENCES

1. Government of India (2015), "Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, Vol I&II, Town and Country Planning Organisation, Ministry of Urban Development, New Delhi.
2. Government of Gujarat (2022), "Manual for Preparation of Development Plans", Gujarat Real Estate Regulatory Authority.
3. Government of India (1972), "Manual for Preparation of Town and Regional Planning Maps", Town and Country Planning Organisation, Ministry of Urban Development, New Delhi.
4. Government of Tamil Nadu (2021), "Regional Plan (Preparation, Publication and Sanction) Rule", Directorate of Town and Country Planning.
5. Government of Maharashtra (2013), "Standardized development control and promotion regulations for Regional Plans in Maharashtra", Urban Development Department.

### CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	2	3	2	1
CO2	2	2	3	2	1	1
CO3	3	1	2	3	2	1
CO4	3	2	3	2	3	2
CO5	3	1	2	3	2	1
CO6	2	2	1	2	3	2
<b>Average</b>	3	2	2	3	2	1

H-High M-Moderate L-Low

TP3322

THESIS PHASE - I

L T P/S C  
0 0 10 5

### OBJECTIVES

- 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.
- To explore different tools and techniques and qualitative and quantitative analysis that are acquired in the context of the study undertaken.
- To engage in logical dialogues and discourses based on past research.
- To acquire report writing skills, Report structuring and Chapterisation.
- To promote research in urban and regional planning.
- The preparation of Thesis is undertaken in two phases. Thesis Phase I is undertaken in III Semester and the Phase II in IV Semester

## 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
6. Planning implications of Smart cities, Green cities, Digital Cities, Eco-Cities.
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

1. Murray, Rowena (2011), "How to Write A Thesis, Open University Press", McGraw Hill Education, UK.
2. Tayie, Sami (2005), "Research Methods and Writing Research Proposals", Pathways to Higher Education, Cairo.
3. Choy, L. T. (2014), "The Strengths and Weaknesses of Research Methodology: Comparison and Complimentary between Qualitative and Quantitative Approaches". IOSR Journal of Humanities And Social Science.
4. Igwenagu, C (2016), "Fundamentals of research methodology and data collection" Vol.1, Nsukka: University of Nigeria.
5. Coughian, M., Cronin, P. and Ryan, F (2007), "Step by-step guide to critiquing research. Part 1: quantitative research". Dublin: School of Nursing and Midwifery. Trinity School.

## REFERENCES

1. Janes Ouma Odongo and Donghui Ma (2021), "Perspective in Urban Planning Research: Methods and Tools", Scientific Research, academic publisher.
2. Diana MacCallum, Courtney Babb and Carey Curtis (2019), "Doing Research in Urban and Regional Planning: Lessons in Practical Methods", Routledge.
3. Sturat Farthing (2016), "Research Design in Urban Planning: A Student's Guide, SAGE Publications Ltd.
4. Reid Ewing and Keunhyun Park (2020), "Basic Quantitative Research Methods for Urban Planners", Taylor & Francis.
5. Ranjit Kumar (2014), "Research Methodology: A Step-by-Step Guide for Beginners", Sage.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	3
CO2	3	3	3	3	3	3
CO3	3	3	3	3	3	2
CO4	3	3	1	2	3	1
CO5	2	2	3	2	2	2
CO6	2	1	3	3	3	3
<b>Average</b>	3	3	3	3	3	2

H-High M-Moderate L-Low

TP3311

**INTERNSHIP TRAINING**

<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>

## 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 speciality in Planning.
- To enable interacting with practicing Planners, allied professionals, researchers and organizations working in the field of speciality 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.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	2	1	1	-	3
CO2	3	3	2	3	3	2
CO3	1	3	1	3	3	2
CO4	3	3	2	3	3	2
CO5	3	3	1	3	3	2
CO6	2	2	2	2	2	1
<b>Average</b>	2	3	2	3	3	2

H-High M-Moderate L-Low

TP3421

THESIS PHASE - II

L	T	P/S	C
0	0	22	11

## 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**

1. Murray, Rowena (2011), "How to Write A Thesis, Open University Press", McGraw Hill Education, UK,
2. Tayie, Sami (2005), "Research Methods and Writing Research Proposals", Pathways to Higher Education, Cairo.
3. Choy, L. T.(2014), "The Strengths and Weaknesses of Research Methodology: Comparison and Complimentary between Qualitative and Quantitative Approaches". IOSR Journal of Humanities And Social Science.
4. Igwenagu C (2016), "Fundamentals of research methodology and data collection" Vol.1, Nsukka: University of Nigeria.
5. Coughian, M., Cronin, P. and Ryan, F (2007), "Step by-step guide to critiquing research. Part 1: quantitative research". Dublin: School of Nursing and Midwifery. Trinity School.

**REFERENCES**

1. Janes Ouma Odongo and Donghui Ma (2021), "Perspective in Urban Planning Research: Methods and Tools", Scientific Research, academic publisher.
2. Diana MacCallum, Courtney Babb and Carey Curtis (2019), "Doing Research in Urban and Regional Planning: Lessons in Practical Methods", Routledge.
3. Sturat Farthing (2016), "Research Design in Urban Planning: A Student's Guide, SAGE Publications Ltd.
4. Reid Ewing and Keunhyun Park (2020), "Basic Quantitative Research Methods for Urban Planners", Taylor & Francis.
5. Ranjit Kumar (2014), "Research Methodology: A Step-by-Step Guide for Beginners", Sage.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
<b>CO1</b>	3	1	2	3	2	1
<b>CO2</b>	2	2	3	2	1	1
<b>CO3</b>	3	1	2	3	2	1
<b>CO4</b>	3	2	3	2	3	2
<b>CO5</b>	3	1	2	3	2	1
<b>CO6</b>	2	2	1	2	3	2
<b>Average</b>	3	2	2	3	2	1

H-High M-Moderate L-Low

<b>TP3001</b>	<b>LAND MANAGEMENT AND REAL ESTATE DEVELOPMENT</b>	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

## 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 6**

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

### **UNIT II SUPPLY AND DEMAND MANAGEMENT 9**

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 12**

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 9**

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 9**

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.

## TEXT BOOKS

1. Card R, Mardoch J, Mardock S (2001), "Real Estate Management Law", OUP Oxford.
2. Banerjee D. N (1998), "Principles and Practice in valuation", Eastern Law House.



3. Gerald R Cortesi (2001), "Mastering Real Estate Principles", Dearborn Trade Publishing, New York, U.S.A.
4. John Ratcliffe (2009), "Urban Planning and Real Estate Development" Routledge, Taylor & Francis Group, London.
5. Rajkumar S Adukia (2009), "Real Estate: Law Practice & Procedures", Snow White Publication Pvt. Ltd, Mumbai, India.

## REFERENCES

1. Fillmore W Galaty (2002), "Modern Real Estate Practice", Dearborn Trade Publishing, New York, U.S.A.
2. "Sustainable Land Management: Challenges, Opportunities, and Trade-offs", World Bank Publications, 2006.
3. Narayan Laxman Rao (2010), "Real Estate Deals", Asia Law House, India.
4. Mittal, S. (2018), "The ABC of Real Estate in India: An Eye Opener Account of the Real Estate Industry in India", White Falcon Publishing, Chandigarh.
5. Searle, L.G (2013), "Conflict and Commensuration: Contested Market Making in India's Private Real Estate Development Sector", International Journal of Urban and Regional Research, Vol. 38, Issue 1, pp. 60-78.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	-	-	-	-	-
CO2	3	-	-	-	-	3
CO3	3	-	-	-	-	3
CO4	3	2	-	-	-	3
CO5	-	-	-	-	2	3
CO6	3	-	-	3	-	-
<b>Average</b>	3	2		3	2	3

H-High M-Moderate L-Low

TP3002

**PLANNING FOR SPECIAL AREAS**

<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

## 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 9

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 9

Socio-economic, Physiographic, Geographic and Political features of Special Areas.

**UNIT III GOVERNANCE AND INFRASTRUCTURE FOR SPECIAL AREAS 9**

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 9**

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 9**

Best Practices of Special Area Planning in India and abroad: Lessons from Joint Economic Zone Development- China- Singapore, Shenzhen SEZ in China, Tanger Med SEZ in Morocco, and Masdar City SEZ in the United Arab Emirates (UAE), Port city Colombo, Thailand Eastern Economic Corridor.

**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.

**TEXT BOOKS**

1. Soundarapandian M (2011), "Development of Special Economic Zones in India : Policies and Issues, Impact and Implications Hardcover – 1, Concept Publishing Company, New Delhi .
2. Kay, R., & Alder, J (2005), "Coastal Planning and Management", (2nd ed.). CRC Press.
3. Farole, T. and Akinci, G (2011). Special Economic Zones: Progress, Emerging Challenges, and Future Directions. World Bank Publications.
4. K.R.Gupta (2008), "Special Economic Zones", Atlantic Publisher.
5. Paulo Guilherme Figueiredo (2022)," Handbook of Research on Special Economic Zones as Regional Development Enablers", IGI Global Publisher of Timely Knowledge.

**REFERENCES**

1. Ministry of Commerce & Industry, Government of India (2006), 'Special Economic Zone Rules'.
2. Jenkins, R., Kennedy, L., Mukhopadhyay, P., and Pradhan, K. (2015) Special Economic Zones in India: Interrogating the Nexus of Land, Development and Urbanization. Environment and Urbanization Asia, Vol. 6, No. 1, pp. 1–17.
3. Seshadri, T. (2012) An Analysis of the Feasibility of Private Land Assembly for Special Economic Zones in India, Urban Studies, Vol. 49, No. 10, pp. 2285-2300.
4. Hitender Mehta (2007), "Law & Practice Relating to Special Economic Zones", Taxmann Publications.
5. Nidhesh K.B (2016), "Special Economic Zones in India: Challenges and Prospects", Studera Press.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	-	-	-	-	2
CO2	2	-	2	-	-	-
CO3	3	-	2	-	-	3
CO4	3	-	3	3	-	3
CO5	3	2	-	-	-	2
CO6	3	-	-	-	-	3
<b>Average</b>	3	2	2	3		3

H-High M-Moderate L-Low

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

### 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 6

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 9

History, the evolution of centralization versus decentralisation 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 9

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 9

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

12

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

1. Ian Blore, Nick Devas, R. P. Slater (2004), 'Municipalities and Finance: A Sourcebook for Capacity Building' Earthscan.
2. Amartya Sen, and Jean Dreze (1995), 'India Economic Development and Social Opportunity', Oxford University Press. New Delhi.
3. Baud, I.S.A. and de Wit, J (2008) 'New Forms of Urban Governance in India: Shifts, models, networks and contestations, Sage, New Delhi.
4. Biekpe, N., Cassimon, D. and Mullineux, A (2017), 'Development Finance and its Innovations for Sustainable Growth,' Palgrave Macmillan, New York.
5. Nagaraja Rao (2016), "Urban Governance in India", Gyan Books.

### References

1. Edward J. Blakely (1994), 'Planning Local Economic Development', SAGE Publications, New Delhi.
2. Mathur, O.P., Thakur, D, and Rajadhyaksha, N. (2009), "Urban Property Tax Potential in India", National Institute of Public Finance and Policy, New Delhi.
3. Mishra, A.K. and Mohanty, P.K. (2018) Urban infrastructure financing in India: applying the benefit and earmarking principles of taxation, Journal of Social and Economic Development, DOI: 10.1007/s40847-018-0059-1.
4. Mohanty, P.K. (2016) Financing Cities: Municipal reforms, fiscal accountability and urban infrastructure, Sage, New Delhi.
5. Joshua Mugambwa (2018), "Handbook of Research on Urban Governance and Management in the Developing World", IGI Global Publisher.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	-	-	-	-	2
CO2	3	-	-	-	-	3
CO3	2	-	-	-	-	3
CO4	-	-	-	-	3	-
CO5	-	-	-	-	3	-
CO6	-	-	2	3	3	3
<b>Average</b>	2		2	3		3

H-High M-Moderate L-Low

TP3004

URBAN DESIGN

L T P/S C  
3 0 0 3

### 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 9

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 9

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 9

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 9

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 9

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

1. Edmund Bacon (1976), "Design of Cities", Penguin Books.
2. Kevin Lynch (2017), "Image of the City", MIT Press.
3. Jonathan Barnett (1996), "An Introduction to Urban Design", Harper & Row, London.
4. Jan Gehl (1987), "Life between Buildings- Using Public Space", Arkitektens Forleg.
5. Gordon Cullen (1978), "The Concise Townscape", The Architectural Press.

## REFERENCES

1. Donald Watson (2005), "Time Savers Standard for Urban Design", McGraw Hill.
2. Christian NorbergSchulz (1980), "Towards a Phenomenology of Architecture", Rizzoli New York.
3. Peter Calthorpe (2013), "Urbanism in the age of Climate Change", Island Press; 2nd edition.
4. Thomas A, Horan (2000), "Digital Places: Building our city of bits", Urban Land Institute.
5. Tridib Banerjee, Anastasia Loukaitou- Sideris (2014), "Companion to Urban Design", Routledge.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	2	3	2	2	1	3
CO2	3	3	3	1	1	2
CO3	2	2	2	1	2	2
CO4	3	1	3	2	2	3
CO5	3	2	2	2	1	2
CO6	2	2	3	3	1	3
Average	3	2	3	2	1	3

H-High M-Moderate L-Low

TP3005

**ECOLOGY AND NATURAL RESOURCE PLANNING**

**L T P/S C**  
**3 0 0 3**

## 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.



## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	-	-	-	2
CO2	3	2	-	1	-	2
CO3	3	2	1	2	-	2
CO4	3	1	2	1	-	3
CO5	3	2	1	2	-	3
CO6	3	1	1	2	-	3
<b>Average</b>	3	2	1	2		3

H-High M-Moderate L-Low

**TP3006 CLIMATE RESILIENT AND DISASTER MANAGEMENT**      **L T P/S C**  
**3 0 0 3**

### 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 9**

Phenomenon of climate, impacts of climate change, climate change mitigation, adaptation and resilience, Urban Heat Island, climate change vulnerability, vulnerable regions, tropics, farmers, gender, children, poor and migrants. International guidelines and policies for climate change, Dimensions of resilience, Ecological and Engineering, Resilient development process.

### **UNIT II NATURE BASED SOLUTIONS FOR CLIMATE RESILIENT DEVELOPMENT 9**

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 9**

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 9**

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 9**

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**

1. Dash, S.K.(2007), "Climate change: an Indian perspective", New Delhi, Cambridge University Press.
2. Carrapatoso, A, Kurzinger (2015), E,"Climate-Resilient Development: Participatory solutions from developing countries", Routledge.
3. Thomas K. J. Mcdermott (2016),"Economics of Climate-Resilient Development", Elgar Publishing,
4. Anand, Rajesh; Jana, N.C.; Sudhir Singh (2009),"Disaster management and sustainable development", Pentagon Press.
5. Sharma, S.C (2019),"Disaster Management", Khanna Book Publishing Co., New Delhi.

**REFERENCES**

1. Carter, W. Nick (1991), "Disaster management: A Disaster Managers' Handbook", Manila, ADB.
2. Adger, W. N (2000)," Social and ecological resilience: are they related? Progress in Human Geography", 24(3), 347–364.
3. Burroughs, William James (2007), "Climate change: a multidisciplinary approach", Cambridge University Press.
4. Bryant (1997); "Climate process and change", Edward Cambridge, Cambridge University Press.
5. Wisner, B., Gaillard, J. C., Kelman, I (2015), "Disaster risk. critical concepts in the environment", Big picture views.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
<b>CO1</b>	2	1	-	-	-	2
<b>CO2</b>	2	2		2	-	1
<b>CO3</b>	2	2		2	-	1
<b>CO4</b>	2	3	3	3	1	2
<b>CO5</b>	2	2	2	2	1	2
<b>CO6</b>	2	2	2	2	1	2
<b>Average</b>	2	2	2	2	1	2

H-High M-Moderate L-Low

<b>TP3007</b>	<b>ENVIRONMENTAL MONITORING AND MODELING</b>	<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
		<b>3</b>	<b>0</b>	<b>0</b>	<b>3</b>

## 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                   9**

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                   9**

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                   9**

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                   9**

Understanding of relevant instruments/ equipment's and procedures of air quality – TSPM, RSPM, SO<sub>2</sub>, NO<sub>x</sub>, 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                   9**

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**

1. Miguel F. Acevedo (2018), "Real-Time Environmental Monitoring Sensors and Systems, CRC Press.
2. G. Bruce Wiersma (2004), "Environmental Monitoring", CRC Press.
3. Anthony, J.J (2008), "Environmental Modelling, Software and Decision Support", Elsevier Science.
4. William G. Gray (2017), "Introduction to Environmental Modeling", Cambridge University Press.
5. Wainwright, J, Mulligan, (2013)., "Environmental Modelling Finding Simplicity in Complexity", Wiley.

**REFERENCES**

1. Dietz T, Rosa EA (1994), "Rethinking the environmental impacts of population, affluence and technology" Human ecology review, 1, 277–300.
2. Ekkehard Holzbecher (2012), "Environmental Modeling Using MATLAB", Springer Berlin Heidelberg.
3. Whitehead, M (2014), "Environmental Transformation: A Geography of the Anthropocene", Routledge, New York.
4. Garg, S,K, "Environmental engineering", Vol 1, Khanna publishers, New Delhi.
5. Gerber, S. B., Finn, K. V (2013). "Using SPSS for windows: Data analysis and graphics", Springer.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	1	3	3	2
CO2	3	3	1	2	2	1
CO3	3	3	1	3	1	1
CO4	3	3	2	3	2	1
CO5	2	3	3	3	2	2
CO6	3	2	2	2	1	2
<b>Average</b>	3	3	2	3	2	2

H-High M-Moderate L-Low



**TP3008**

**ADVANCED GIS IN PLANNING**

<b>L</b>	<b>T</b>	<b>P/S</b>	<b>C</b>
1	0	4	3

**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**

**15**

Model Builder – Development of Models using Graphical Model Builder: Input to model- Algorithm input – Running a Model – Nesting a Model- Arc GIS Model Builder: Building a Model, Input: Variables, Arrays – Iterative Models – Building and Running a Model.

**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**

Importance of 3d Modeling in Planning, Introduction to City Engine, 3d modelling work flow, Concept of Procedural Modeling, Understanding CGA Shape Grammar, Using CGA Rules, Creating a neighbourhood with Rules in City Engine.

**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**

1. David W. Allen (2011), "Getting to Know ArcGIS ModelBuilder", Esri Press; 1st edition.
2. Silas Toms, Dara O'Beirne (2017), "ArcPy and ArcGIS Automating ArcGIS for Desktop and ArcGIS Online with Python", Packt Publishing Limited.
3. Joel Lawhead (2019), "Learning Geospatial Analysis with Python: Understand GIS fundamentals and perform remote sensing data analysis using Python 3.7", Packt Publishing Limited.
4. Robert R. Hoffman and Arthur B. Markman (2001), "Interpreting Remote Sensing Imagery: Human Factors", CRC Press.
5. J.B. Sharma (2019), "Applications of Small Unmanned Aircraft Systems: Best Practices and Case Studies", CRC Press.

**REFERENCES**

1. Mayra Zurbarán, Thomas Kraft, Stephen Vincent Mather (2018), "Post GIS Cookbook Store, organize, manipulate, and analyze spatial data", Packt Publishing Limited, 2nd Edition.
2. Chaowei Yang (2017), "Introduction to GIS Programming and Fundamentals with Python and ArcGIS", CRC Press.
3. Paul Longley and Michael Betty (1996), "Spatial Analysis – Modeling in GIS Environment", John Wiley.
4. Paul A. Zandbergen (2020), "Advanced Python Scripting for ArcGIS Pro", Environmental Systems Research Institute Inc.
5. Laura Tateosian (2016), "Python for Arc GIS", Springer Nature.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	1	-	3	2
CO2	2	2	1	-	3	1
CO3	3	3	2	2	2	2
CO4	1	1	1	-	3	2
CO5	1	1	2	1	3	-
CO6	3	2	3	1	3	1
<b>Average</b>	2	2	2	1	3	2

H-High M-Moderate L-Low

TP3009

IoT APPLICATION IN PLANNING

L	T	P/S	C
3	0	0	3

### 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 9

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 9

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 9

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 9

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 9

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.

**TEXT BOOKS**

1. Stamatina Th. Rassia and Panos M. Pardalos (2018), “Smart City Networks: Through the Internet of Things: 125 (Springer Optimization and Its Applications)”, Springer.
2. Houbing Song, Ravi Srinivasan, Tamim Sookoor, Sabina Jeschke, (2017), “Smart Cities: Foundations, Principles, and Applications”, Wiley.
3. Angioletta Voghera, Luigi La Riccia (2019) , Spatial Planning in the Big Data Revolution, IGI Global.
4. Federico Cugurullo,(2021), “Frankenstein Urbanism: Eco, Smart and Autonomous Cities, Artificial Intelligence and the End of the City (Routledge Studies in Urbanism and the City)”, Routledge.
5. Fadi Al-Turjman (2019), Intelligence in IoT-enabled Smart Cities, CRC Press.

**REFERENCES**

1. MD Kennedy (2013), ‘Introducing Geographic Information Systems with ArcGIS - A Workbook Approach to Learning GIS’, John Wiley & Sons Inc; 3rd edition.
2. Paul Longley and Michael Betty (1996), “Spatial Analysis – Modeling in GIS Environment”, John Wiley.
3. Tripp Corbin GISP (2020), “Learning ArcGIS Pro 2: A beginner’s guide to creating 2D and 3D maps and editing geospatial data with ArcGIS Pro”, Esri Press; 2nd Edition.
4. Lex Comber and Chris Brunsdon (2020), “Geographical Data Science and Spatial Data Analysis: An Introduction in R (Spatial Analytics and GIS)”, SAGE Publications Ltd; 1st edition.
5. Andrew Crooks, Nick Malleson , Ed Manley, Alison Heppenstall (2018), “Agent-Based Modelling and Geographical Information Systems: A Practical Primer (Spatial Analytics and GIS)”, SAGE Publications Ltd; 1st edition.

**CO-PO Mapping**

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	1	-	3	2
CO2	2	2	1	-	3	1
CO3	3	3	2	2	2	2
CO4	1	1	1	-	3	2
CO5	1	1	2	1	3	-
CO6	3	2	3	1	3	1
<b>Average</b>	2	2	2	1	3	2

H-High M-Moderate L-Low

**TP3010**

**STREET FOR PEOPLE**

**L T P/S C**  
**3 0 0 3**

**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**

**9**

Street Design Principles - Phases of Transformation – one way and two-way street – neighborhood main street – Yield Street – residential boulevard – transit corridor – green and commercial alley – residential and commercial shared street.



## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	2	1	2
CO2	2	2	1	1	1	2
CO3	3	3	2	2	2	3
CO4	2	1	1	1	1	2
CO5	3	2	2	2	1	2
CO6	2	2	1	2	2	3
<b>Average</b>	3	2	1	2	1	2

H-High M-Moderate L-Low

TP3011

URBAN TRANSPORTATION SYSTEMS

L T P/S C  
3 0 0 3

### OBJECTIVES

- 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

9

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

#### UNIT II ROUTE NETWORK DESIGN

9

Transportation Demand estimation, Data requirements, Network planning - Corridor identification - Route Systems and Capacity.

#### UNIT III SCHEDULING

9

Components –Scheduling procedure and patterns – Fleet Requirement – Bus and Crew scheduling - Rail operation design – Scheduling – Frequency and Headway.

#### UNIT IV TERMINAL PLANNING

9

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

9

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

1. Black, Alan (1995), "Urban Mass Transportation Planning", McGraw- Hill, Inc., New York.
2. Vukan, R. Vuchic (2007), "Urban Transit Systems and Technology", John –Wiley & Sons, New Jersey.
3. Sigurd Grava (2004), "Urban Transportation Systems – Choices for Communities", The McGrawHill Companies.
4. Black, William R (2010), "Sustainable transportation: problems and solutions", The Guilford Press.
5. Kumar Ashis (2020), "Transportation System And Planning", 2 Edition, Vayu Education of India.

## REFERENCES

1. Bruun, Eric Christian, (2014), "Better public transit systems: analyzing investments and performance", London : Routledge.
2. Abingdon, Oxon, (2017), "Public transport : its planning, management and operation", New York, NY : Routledge.
3. Jefferson McFarland, (2016), "Concepts in urban transportation planning : the quest for mobility, sustainability and quality of life", Jefferson, North Carolina : McFarland & Company, Inc., Publishers.
4. Trynos Gumbo, Themban Moyo , Bongumusa Ndwandwe, Brightnes Risimati, Siphwe Given Mbatha , (2022), "Urban Public Transport Systems Innovation in the Fourth Industrial Revolution Era: Global South Perspectives, Reflections and Conjectures", Springer.
5. Black, W.R (2010), "Sustainable Transport: Problems and Solutions", Gulford Press, New York.

## CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	1	1	3
CO2	3	3	2	2	2	3
CO3	3	2	1	2	2	2
CO4	2	2	1	1	2	3
CO5	3	1	2	1	1	3
CO6	3	2	2	1	2	3
<b>Average</b>	3	2	2	1	2	3

H-High M-Moderate L-Low

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.

<b>UNIT II</b>	<b>TRANSPORTATION AND VEHICLE OPERATING COSTS</b>	<b>9</b>
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.		
<b>UNIT III</b>	<b>ECONOMIC ANALYSIS OF PROJECTS</b>	<b>9</b>
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.		
<b>UNIT IV</b>	<b>FINANCING OF ROAD PROJECTS</b>	<b>9</b>
Methods – Private Public Partnership (PPP) - Toll collection - Economic viability of Design-Build-Operate-Transfer Schemes – Risk Analysis – Value for Money analysis - Case Studies.		
<b>UNIT V</b>	<b>LAND AND REAL ESTATE MARKETS</b>	<b>9</b>
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**

1. Arthur O' Sullivan, (2012) 'Urban Economics', McGraw – Hill/Irwin, New York, 8th edition.
2. Briggs, X, Popkin, S. & Goering. J, (2010) 'Moving To Opportunity: The Story of an American Experiment to Fight Ghetto Poverty'. Oxford University Press.
3. Park, Robert E./Burgess, Ernest W, (1970) 'The City' published by University of Chicago.
4. Gans, Herbert, (1994) 'Urbanism and Sub-urbanism as Ways of Life: A Re-evaluation of Definitions.' In People, Plans, and Policies.
5. Jackson, K, Crabgrass Frontier, (1985) 'The Suburbanization of the United States.' Oxford University Press.

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1. McCann, Philip, (2001) 'Urban and Regional Economics', Oxford University Press.
2. Paul N. Balchin, Gregory H. Bull, Jeffrey L. Kieve, (1995) 'Urban Land Economics and Public Policy', Macmillan International Higher Education.
3. Quigley, John M, (2008), 'Urban Economics.' The New Palgrave Dictionary of Economics (2nd edition).
4. Strange, William C, (2008), 'Urban Agglomeration', The New Palgrave Dictionary of Economics (2nd edition).
5. Winfrey (1969), Economic analysis for Highways, International Textbook Company, Pennsylvania, 23. IRC.

### CO-PO Mapping

COURSE OUTCOMES	PROGRAMME OUTCOMES					
	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	2	1	2	2	3
CO2	3	2	2	3	2	3
CO3	3	3	1	1	2	2
CO4	3	2	1	3	2	2
CO5	2	2	1	1	1	3
CO6	3	2	1	3	2	3
<b>Average</b>	3	2	1	2	2	3

H-High M-Moderate L-Low

