

Semester – I

Planning and Design Studio – I (PCC)								
Credit: 4				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
0	0	8	0	--	--	--	50	50

Course Outcomes	
CO1	Students will be able to appraise an area in terms of land uses, administration, urban form, etc through primary physical surveys and secondary data.
CO2	Students will be able to invent physical feasibility analysis at the site level and financial feasibility of the whole project.
CO3	Students will be able to develop various concepts concerning designing the site at the neighbourhood and township levels.
CO4	Students will be able to apply the basics of Neighborhood Planning through processes of experiential learning.

Course Contents: Covers the basics of Graphics and Presentation Techniques of Planning

Area Appreciation Appreciation studies of residential, commercial, and institutional areas in small urban and/or rural settlements; Data collection through site visits, surveys, and documentation; Graphic presentation of collected primary and secondary data; Preparation of base maps and key maps of the study area; Space Perception through study of areas with varying characters to appreciate the concepts of built form, activities, and people. Appreciate various elements of built form such as plot sizes, FAR, densities, building heights, and open spaces; Understand how built form supports various activities in different areas. Use Power Point and Multi-Media Projections.
Designing, Preparation, and Presentation of Drawings Design and preparation of plan, sections, and elevation of low-rise and high-rise apartments, considering the building byelaws and zoning regulations; Preparation of presentation drawings.
Planning Working Drawings Introduction to the working drawings; Preparation of plans, sections, elevations, and important details of an apartment unit.
Site Analysis and Conceptual Approach to Site Planning Site analysis, development standards, and preparation of the design brief; various considerations for site layout and conceptual approach to site planning;
Layouts and Area Analysis Preparation of preliminary layout and area analysis; Final layout showing the circulation and basic infrastructure;

Costing and Preparation of Model

Rough cost of the scheme and model preparation to an appropriate scale.

Reference Books:

1.	Site Planning by Lynch, Kevin
2.	Building Drawing with an Integrated Approach to Built Environment by MG Shah, CM Kale, SY Patki, Tata McGraw Hill Education Pvt. Ltd., New Delhi, 5 th Edition, 2017
3.	Qualitative Analysis for Planning and Policy by John Gaber and Sharon Gaber. Planner Press, APA 2007
4.	Fundamentals of land development by David and PE Johnson. John Wiley and Sons, 2008
5.	Community Analysis and Planning Techniques by Richard E Closterman. Rowman and Littlefield 1990

**Qualitative and Quantitative Methods of Planning
(PCC)**

Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes

CO1	Students will be able to extract and interpret Data
CO2	Students will be able to illustrate Probability and Data Sampling.
CO3	Students will be able to interpret Statistical Analysis.
CO4	Students will be able to articulate Forecasting and Time Series Analysis.

Unit-1: Data Collection and Presentation

Data Collection: Primary and Secondary Sources of data, Survey Design, sources of various data in India, Data Presentation: Classification of Data, Tabulation of Data, Charting of Data, Choice of Suitable Diagrams, etc.

**4
Hrs.**

Unit-2: Data Analysis

Measures of Central Tendency: characteristics of a Good Average, Arithmetic Mean, Median, Mode, Geometric Mean and Harmonic Mean, etc. Measures of Variation: Significance of Measuring Variation, Methods of Studying Variation, Average Deviation, Standard Deviation, etc.; Skewness, Moments, and Kurtosis: Measures of Skewness, Moments, Kurtosis, etc.

**6
Hrs.**

Unit-3: Probability and Data Sampling

Probability: Types of Probability, Random Variable, Probability Function,

**6
Hrs.**

Sampling: Purpose and Principle of Sampling, Methods of Sampling, Size of Sample, Merits and Limitations of sampling, Sampling Distribution, etc.	
Unit-4: Statistics Correlation Analysis: Significance, Correlation & Causation, Types of Correlation, Methods of Studying Correlation, Multiple Correlation, etc.; Regression Analysis: Difference between Correlation and Regression, Linear Bivariate Regression Model, Regression Lines, Equations, Coefficients, etc.; Index Numbers: Use of Index Numbers, Unweighted Index Numbers, Weighted Index Numbers, Quantity Index Numbers, Volume Index Numbers, Test for Perfections, etc.	8 Hrs.
Unit-5: Forecasting, Linear Programming and Hypothesis Testing Forecasting: Introduction, Steps in Forecasting, Methods of Forecasting, etc.; Time Series Analysis: Components of Time Series, Straight Line Trends, Non-Linear Trend, etc. Linear Programming: methods for maximizing, methods for minimizing, etc.; Input-Output Analysis; Hypothesis Testing: The Chi (χ^2) Test, The Z-Score Test, The T-Test, Test for Proportion, etc.	6 Hrs.
Unit-6: Introduction to Qualitative Research Quantitative vs. Qualitative Research; Importance and Use of Qualitative Research; Dominant paradigms of Qualitative Research - Interpretivist Thinking, Verstehen, Constructivism, Critical Theory, Introduction to Qualitative Inquiry - Ethnography, Grounded Theory, Participatory Action Research, etc.; Methods of Collecting and Analyzing Empirical Materials, Analyzing Talk and Text - Transcription, Domain and Theme Analysis, Focused Coding Data Management and Analysis Methods, Software and Qualitative Research, etc.	6 Hrs.

Reference Books:	
1.	Connor, L. R. and Morreu, A J H (1964): Statistics in Theory and Practice, Pitman, London
2.	Kruckeberg and Silvers (1974): Urban Planning Analysis: Methods and Models, John Wiley & Sons, New York
3.	Mode, E B (1961): Elements of Statistics, Prentice Hall, New Jersey Naiman, Rosenfeld, Zirkel (1972): Understanding Statistics, McGraw Hill, USA
4.	Wonnacott and Wannacott (1969): Introductory Statistics, John Wiley & Sons, New York
5.	Williams, Ken (ed) (1975): Statistics and Urban Planning, Charles Knight & Co. Ltd, London
6.	Yamane, Taro (1964): Statistics – An Introductory Analysis, Harper, New York
7.	Gupta S. P. and Gupta M. P. (2005), Business Statistics, Sultan Chand & Sons, New Delhi.

Techniques of Planning (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1	Students will be able to differentiate spatial and non-spatial data collection, presentation, and interpretation in context for physical plan preparation.
CO2	Students will be able to analyze demographic and socio-economic data, using quantitative tools and techniques in the planning and implementation of various plans.
CO3	Students will be able to examine existing Urban and Regional Planning practices in India.
CO4	Students will be able to apply knowledge derived from the course to solve real-life problems.

Unit 1: Techniques of Preparation and Collection of Spatial Data for Base Map Base Map, Contents of Base Map, Different types of Plans, General Features of Base Map, Scale, type of Scales for Different Hierarchy of Plans, Layout Plans, etc.	6 Hrs.
Unit 2: Physical and Socio-Economic Surveys Data Requirements for Urban and Regional Planning, Sources and Methods of Primary and Secondary Data, Data Collection, Questionnaire Design, Sampling Techniques, Interview, Technique of Conducting Surveys for Land Use, Building Use, Height of Building, Density, Structural Condition of Building, Physical Features of Land, etc.	6 Hrs.
Unit 3: Graphical Presentation of Spatial and Non-Spatial Data Tabulation of Data, Graphical Presentation of Data; Pie Diagrams, Histograms, Bar Charts, Normal, Semi-Log, Double Log Graphs and Their Uses; basic Disciplines of Illustration and Tables; Color, Black and White Presentation Techniques; Land Use Classification, Coding, and Analysis; Residential and Non-Residential Density Patterns and Analysis; Presentation of Spatial Data, Analysis, and Proposals, etc.	6 Hrs.
Unit 4: Methods of Analysis Methods of Analysis of Socio-Economic and Physical Data; Use of Techniques of Location Quotient, Coefficient of Localization; Locational Attributes of Activity	6 Hrs.

and Population; Techniques for Understanding Structure of Urban Areas, Land Values and Density Patterns, etc.	
Unit 5: Planning Standards Formulation of Spatial Standards for Residential, Industrial, Commercial, and Recreational Areas, Space Standards for Facility Areas, Utilities, And Networks; Population, Distance Criteria; Performance Standards; Case Studies, etc.	6 Hrs.
Unit 6: Plan Preparation and Advanced Techniques Setting of Goals and Objectives; Methodologies for preparation of urban/ regional development plans, master plans, structure plan and strategy plan techniques; plan implementation techniques; public participation and plan implementation; techniques of urban renewal and central area redevelopment, Thresholds analysis, retail location and industrial location analysis; intervening opportunity models; Gravity Models	6 Hrs.

Reference Books:	
1.	How to Conduct Survey, Arlene Fink, Sage, 2013
2.	How to Analyze Data, C.T. Fitz – Gibbon and L.L. Morris, Sage, 1987
3.	Urban Planning methods: research and Policy analysis by Ian Bracken, Methuen and Co. Ltd. London ISBN0-416-74870-8
4.	Urban Land Use Planning by F. Stuart Chapin Jr., Harper & Brothers, Publishers, New York, USA

Traffic and Transportation Planning (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1	Students will be able to relate the relationship between urbanization and the demand for transportation services.
CO2	Students will be able to connect relationships between speed, flow, and density in traffic.
CO3	Students will be able to analyze the road and intersection hierarchy and design elements.
CO4	Students will be able to apply design principles in traffic signal designs and parking facilities.

Unit 1: Transport System and its Development Urbanization and transport demand, motorization trends Evolution of Transport system, Economic, political and social significance and transport development, Role and importance of transport, characteristics in various forms of transport systems - road, rail, air, water; Transport policies and programs in India before and after independence, Classification	6 Hrs.
Unit 2: Fundamentals of Traffic Flow Basic components of traffic flow, Road user and vehicle characteristics, Fundamental parameters and relations, Concept of PCU and level of service, capacity of uninterrupted flow conditions, factors affecting capacity and level of service; capacity of rural and urban roads	6 Hrs.
Unit 3: Traffic and Transportation Surveys Study area definitions, surveys and their types, sampling of travel methods, survey techniques, design of proforma, methods of conducting surveys, analysis and interpretation, processing of travel data, analysis and interpretation of traffic studies. methods of conducting surveys, Road and network inventory, Traffic Volume Count, origin-destination survey, speed and delay study, parking surveys, pedestrian survey, public transport survey, Intermediate transport survey, Accident Studies, design of survey proforma, analysis and interpretation	6 Hrs.
Unit 4: Transport Facility Design Road: hierarchy, design control and criteria, Road Intersection Elements, geometric design elements, sight distance and control of access; Intersection: hierarchy of intersections, Intersection Design: Gap acceptance and capacity concepts, Uncontrolled Intersection: Capacity and LOS analysis, Traffic Rotaries and Grade Separated Intersection.	6 Hrs.
Unit 5: Traffic Management and Control Traffic Management measures; Arterial Management; Traffic Signs - principles, types and design considerations, road markings; Traffic Signals - types, optimal cycle length and signal settings, Traffic signal design: Design Principles of Traffic Signal, Evaluation of a Traffic Signal; Regulation of Traffic – speed regulation, regulation of vehicle	6 Hrs.
Unit 6: Public Transit and Non-motorized Transport Planning Pedestrian Facilities: Capacity guidelines for at-grade and grade separated pedestrian facilities, design considerations. Cycling Facilities: Capacity guidelines and design considerations for cycle tracks Public Transport / Para Transit Facilities: Design standards for bus stops, auto rickshaw, taxi, cycle rickshaw stands, Parking: Parking space norms and standards, design standards for on-street and off-street parking facilities	6 Hrs.

Reference Books:	
1.	L. R. Kadiyali, Traffic Engineering and Transport Planning
2.	US Highway Capacity Manual
3.	INDO Highway Capacity Manual
4.	IRC Guidelines
5.	C. Buchanan, Traffic, and Design
6.	M. Taylor, W. Young, Bansal, Understanding Traffic systems
7.	Home Gurger, Transport Engineering Handbook
8.	Ortuzar, J. D., Willumsen, L. G., Modelling Transport (4th edition), John Wiley & Sons, 2011
9.	S.K. Khanna and C.E.G. Justo, Highway Engineering, Khanna Publishers, Roorkee, 2001

Planning Theory (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1	Students will be able to collaborate on Evolution of Planning Theories
CO2	Students will be able to comprehend the Changes in Theory in Response to Changing Contexts and the Theory – Practice Gap
CO3	Students will be able to contextualize the Salient Features of Classical and Contemporary Planning Theories
CO4	Students will be able to compare methods of Community Participation and Advocacy Planning

Unit 1: Defining Planning Theory Various definitions of Town and Country Planning; Goals and Objectives of Planning; Components of Planning; Benefits of Planning; Arguments for and against Planning Definitions of Planning Theory of Planning, Theory in Planning and Theory about Planning; Ontology and Epistemology of Planning Theory; Planning Theory: Definition and Typology; the theory-practice gap; Role of Theory in Urban Studies, etc.	6 Hrs.
Unit 2: Basis of Planning Definitions, Planning as a Hierarchical Process, Systems Concept, Systematic Planning, Optimization, Planning as a Problem-Solving Process, Philosophy and	7 Hrs.

Purpose of Planning; Justification of Planning, Essential Features of Planning, Ecological Perspective of Planning, the Scope and Meaning and Objectives of Planning; Town Planning as a Practice, Profession and Discipline; the Nature of Town Planning Problems; Development of Planning Thought, etc.	
Unit 3: Evolution of Planning Theories Paradigm Shifts in Planning Theory with time and context; Land Use Theories of Urban Structure; Transition to Socially based theories and Urban Ecology-Chicago School; Socialist Planning, Capitalist Planning and Mixed Economy Planning Responses; Pluralism and Advocacy Planning; Postmodern Planning; Collaborative Planning- Communicative Rationality; Planning as a Communicative Process, etc.	6 Hrs.
Unit 4: Classical and Contemporary Planning Theories An overview of Contemporary Theories on Urban Planning (William Alonso, David Harvey, Herbert Simon, Paul Davidoff, Christopher Alexander, Jane Jacobs, Alan Turner, Peter Calthorpe, Saskia Sassen, Manuel Castells, Ananya Roy); City as a Right to City, Global City, Network City, Systems Approach, etc.	6 Hrs.
Unit 5: Perspectives in Planning Scientific Rationalism and Planning, Systems View of Planning with a focus on Contributions of J. B. McLoughlin and Others; Chief Characteristics of Comprehensive Rational Planning Model and Implications for Planning Practice; Systemic Change, Advocacy Planning, Pluralism and Equity Planning, Major Components of Advocacy, and Equity Planning Model; Implications on Role of Planners in Planning Practice, etc.	6 Hrs.
Unit 6: Participatory Planning Public Interest and its Forms, Participatory Planning: History and Significance, Methods of Public Participation; Institutional Arrangement for Public Participation, Impediments to Public Participation and Conditions for Effective Public Participation, Public Participation and Empowerment, Participation, Policy Formulation, and Implementation; Collaborative and Communicative Planning, Capabilities Perspective, etc.	6 Hrs.

Reference Books:	
1.	Planning Theory by A. Faludi. Pergamon Press, Oxford
2.	A Ladder of Public Participation by S. Arnstein. JAIP
3.	Taylor Nigel, Planning Theory since 1945, SAGE Publications, London
4.	Finche, R. and Planning for Diversity First Palgrave Macmillan, London. Iveson, K.
5.	Urban Planning Theory Since 1945 by N. Taylor, Sage publications, London
6.	Faludi, A. A Reader in Planning Theory - Pergamon Press, Oxford.
7.	Feinstein, S.S. and Readings in Planning Theory - Mackwell. Campbell, S.

Reference Books:	
8.	McLoughlin, J.B. Urban and Regional Planning: - Faber and Faber, London. A System Approach
9.	Hall, P. Urban and Regional Planning Fourth Routledge, London.
10.	Faludi, A. Planning Theory - Pergamon Press, Oxford.

Geo-Informatics (VSEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
2	0	2	1	30	20	50	50	50

Course Outcomes:	
CO1	Students will be able to appraise various tools available in GIS to map large data.
CO2	Students will be able to relate different techniques of advanced geo-spatial analyst.
CO3	Students will be able to analyze the data and use GIS applications.
CO4	Students will be able to evaluate and apply real world applications of GIS tools and techniques for decision making & decision support system.

Unit 1: Data creation & Conversion Introduction to Image Correction and Spectral Indices; Review of GIS & 3D Mapping Techniques; Geo-referencing, Review of Coordinate systems and Projection systems, Spatial Data Models, geo-processing tools and mapping techniques, raster data analysis; Multiplatform data handling- Conversion of GIS data to CAD format and vis-a-vis; 3D mapping techniques in Arc Scene.	6 Hrs.
Unit 2: Data analysis Remote sensors and platform; Spatial Analysis and Related Mapping Techniques Location Analysis: suitability analysis, vulnerability analysis, hotspot analysis, Application of near tool, shadow analysis; Identifying pattern: supervised and unsupervised classification, review of indices, Digital change detection; Spectral Vegetation Index, Land Use/Land Cover Mapping process, Hydrological modeling in GIS	6 Hrs.
Unit 4: Spatial data Processing Network analysis About network, creating network datasets, basic network analysis, creating multi-modal network dataset, advanced network analysis-shortest path method, best route, the utility network analyst. GIS Standards, QGIS; Plugins; Open-source consortium, Introduction to web GIS and Geo server, GPS error and DGPS	6 Hrs.

Unit 5: Geoprocessing Significance and type Attribute Query, spatial query; Vector based spatial data analysis. Raster based spatial data analysis; Buffer analysis, Data quality and sources of errors, Integration of RS and GIS data, Digital Elevation Model, Network Analysis in GIS, Suitability analysis, Data analysis and modeling in GIS–types of GIS modeling, Decision support systems. Integration of GIS and GPS Automation and Basic programming Model Builder: Creating a model in Graphical User Inter-phase (GUI), expanding capabilities; Introductory programming, urban informatics	6 Hrs.
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Reference Books:	
1.	Concepts and Techniques of Geographic Information Systems by Chor Pang Lo; Prentice-Hall of India Private Ltd.
2.	Mastering ArcGIS by Maribeth Price; McGraw Hill.
3.	Lo C.P. and Yeung A.K.W., Concepts and Techniques of Geographic Information Systems, Prentice-Hall, Inc., NJ, 2002.
4.	Harsan Karimi (Ed.) (2009) Handbook of Research on Urban Informatics: The Practice and Promise of the Real-Time City. Information Science Reference, IGI Global, Hershey, Pa.
5.	Paul Longley and Michael Betty Spatial Analysis – Modeling in GIS Environment 1996 John Wiley

Research Methodology (RM)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	-	-

Course Outcomes	
CO1:	Students will be able to understand Research Methodology
CO2:	Students will be able to identify and define Research Problem
CO3:	Students will be able to design Sampling Methods
CO4:	Students will be able to write scientifically

Unit 1: Introduction and Defining Research Problem Meaning of Research, Objectives of Research, Motivation in Research, Types of Research, Research Approaches, Significance of Research, Research Methods versus Methodology, Research and Scientific Method, Research Process, Criteria of Good Research, Problems Encountered by Researchers in India, Necessity of Defining the Problem, Technique Involved in Defining a Problem, etc.	6 Hrs.
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Unit 2: Problem Identification and Formulation Research Question - Investigation Question - Measurement Issues - Hypothesis - Qualities of a good Hypothesis- Null Hypothesis and Alternative Hypothesis. Hypothesis Testing, Research Design: Concept and Importance in Research - Features of a Good Research Design, Qualitative and Quantitative Research, Concept of Measurement - Validity and Reliability. Levels of Measurement, etc.	6 Hrs.
Unit 3: Sampling, Data Collection, and Analysis: Types and Sources of Data, Methods of Collecting Data, Concept of Sampling and Sampling Methods, Classification and Tabulation of Data, Graphical Representation of data, graphs, and charts – Histograms, frequency polygon and frequency curves, bell shaped curve and its properties, Statistical Methods for Data Analysis: Applications of Statistics in Research, Measures of Central Tendency and Dispersion, etc.	6 Hrs.
Unit 4: Scientific Writing Research Report and its Structure, Journal Articles – Components of Journal Article. Explanation of Various Components; Structure of an Abstract and Keywords. Thesis and Dissertations, Components of Thesis and Dissertations; Referencing Styles and Bibliography, Ethics in Research - Plagiarism- Definition, Different Forms, Consequences, Copyright, Infringement, etc.	6 Hrs.

Reference Books:	
1.	Business Research Methods- Donald Cooper & Pamela Schindler, TMGH, 9th Editions
2.	Business Research Methods- Alan Bryman & Emma Bell by Oxford University Press
3.	Research Methodology by C. R. Kothari by New Age International (P) Ltd.
4.	Wilkinson & Bhandarkar: Methodology and Techniques of Social Research
5.	Research Methodology (2004), by Panneerselvam, R., by Prentice Hall of India, New Delhi
6.	Research Methodology by Michael V. P
7.	Research Methodology (2009) by Ranjit Kumar, 2 nd Edition, Pearson Education

Semester- II

Planning and Design Studio - II (PCC)								
Credit: 4				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
0	0	8	0	--	--	--	50	50

Course Outcomes	
CO1:	Students will be able to understand the contents, substance, and characteristics of various development plans for predominantly urban settlements.
CO2:	Students will be able to comprehend the processes of plan preparation and data-based analysis techniques for the identification of issues and potentials for an urban settlement through collaborative teamwork
CO3:	Students will be able to apply knowledge in various aspects of planning urban areas about the national vision and demands of the society.
CO4:	Students will be able to evolve development policies, development control rules and regulations, and land use plan and devise implementation mechanisms for a selected urban area
Prerequisites: Planning and Design Studio – I, Re-exam is not allowed being Group Exercise.	

Course contents: The focus is on the preparation of a development plan for an urban settlement based on a field visit to the chosen study area.

Studying Development Plans The study shall involve understanding of contents of various types of development plans and exploring their focus areas, studying the legal and policy background of development plans in an international context and focusing on Indian context
Generating Existing Scenario based on Data Input Identification of the data to be collected and the sources thereof, preparation of a collection of secondary source information of the towns or cities selected for the study, organising surveys, collection of primary and secondary data and information on various aspects such as demography, social, economic, housing, transportation, etc.; conduct of primary and secondary surveys
Analysis and Synthesis Analysis and synthesis of data and information collected on various aspects; projections of population and workforce; trends and issues identification.
Plan, Policies and Proposals

Preparation of policies and proposals with different scenarios and identification of priorities and action areas; phasing and monitoring; governance structures for implementation; land use plan and the plan document

Reference Books:

1.	Ministry of Urban Development ,2015, The Urban and Regional Development Plan Formulation and Implementation (URDPFI) Guidelines, Government of India, New Delhi.
2.	Government of Maharashtra, 2020, Unified Development Control and Promotion Regulations for Maharashtra state.
3.	B. K. Pattanaik, 2016, Introduction to Urban Development and Planning, Sage Publication, ISBN:978-93-5388-322-5(PB)
4.	N. Mani, 2012, Infrastructure Development and Financing in India, New Century Publications, New Delhi, ISBN: 978-8177083095

Planning Legislation (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes

CO1:	Students will be able to understand the basic Concept of Law.
CO2:	Students will be able to apply for Maharashtra Regional & Town Planning Act-1966
CO3:	Students will be able to apply for Land Acquisition, Rehabilitation and Resettlement Act, 2013
CO4:	Students will be able to apply Unified Development Control and Promotion Regulations -2020

Unit-I: Concept of Law Concepts and contents of Indian Constitution, meaning of the term of Law, Legislation, Ordinance, Bill, Act, Regulations and Bye-laws; Significance of Law and its relationship to Planning; evolution of Planning Legislation and overview of legal tools connected with Urban Planning and Development; 73 rd and 74 th Constitution Amendment Acts; etc.	6 Hrs.
Unit-2: Maharashtra Regional & Town Planning Act-1966 Introduction, Relevance with Planning, Section wise Provisions in the Act, Case Studies	10 Hrs.

Unit-3: Land Acquisition, Rehabilitation and Resettlement Act, 2013 Introduction, Relevance with Planning, Section wise Provisions in the Act, Case Studies	10 Hrs.
Unit-4: Unified Development Control and Promotion Regulations -2020 Introduction, Relevance with Planning, Section wise Provisions in the Regulations, Case Studies	10 Hrs.

Reference Books:	
1.	Indian Constitution
2.	Maharashtra Regional & Town Planning Act-1966
3.	Land Acquisition, Rehabilitation and Resettlement Act, 2013
4.	Unified Development Control and Promotion Regulations -2020

Socio-Economic Aspects of Planning (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to correlate Sociology and its relevance to Planning
CO2:	Students will be able to Construct Definition and Scope of Economics.
CO3:	Students will be able to Articulate Land Uses and Land Values.
CO4:	Students will be able to Interpret Land Economics and Development Economics.

Unit-1: Definition and Scope of Sociology Definition of Sociology, Nature of Sociology, Importance of Sociology; Three Major Theoretical Perspectives of Sociology, Sociological Concepts and Methods; Urban Sociology – Chicago School of Urban Sociology, Man and Environment Relationships, Social Groups – Primary, Secondary, etc.; Urban Sociological Theories – Marx & Engels, Tonnies, George Simmel, Max Weber, etc.; Components of Population -Population Composition, Population Growth and Projection; etc.	6 Hrs.
Unit-2: Social Institution and Social Stratification Social Institution - Family, kinship Pattern and Authority; Urban Ecology, Urban Family, Cultural Aspect of Urban Life, Social Aspect of Urban Life; Urbanization and Industrialization, Social Consequences of Urbanization - Urban Issues, Urban	6 Hrs.

Problems, Urban Juvenile Delinquency, etc.; Social Structure and Social Control; Urban Stratification, Status and Mobility; Social Inequality and Social Defiance; Social Structure and Spatial Planning; etc.	
Unit-3: Definition and Scope of Economics Definition and Scope of Economics and its importance in Planning; types of Economics- Positive & Normative Economics, Classical & Non-classical Economics, Macro & Microeconomics, etc.; Concept of Market Demand & Supply, Time & Supply, Shift & Movement, Elasticity & Consumer Markets; Equilibrium and Disequilibrium of Economy; Economics and Social Costs; etc.	6 Hrs.
Unit-4: Theory of Firm Production Theory of Production; Factors of Production, Factor Immobility, Fixed Cost and Variable Costs, Consumer Goods & Capital Goods; Perfect Market Conditions, Pricing under different Market Conditions; Economics of Scale; Economics of Agglomeration & Economics of Conglomeration; Growth and Development Indicators; Measures of National Income; Defining Development and Under-development; etc.	6 Hrs.
Unit-5: Land Economics Cost, Price and Value of Commodity, Use Value & Exchange Value, Perfect Market Conditions; Concept of Pareto Optimality, Welfare Economics; Land Characteristics: Immobility, Divisibility, Modification, Non-standardized Commodity, etc.; Attributes of Land: Location, Area, Configuration, Permissibility, Restriction, etc.; Effect of Government Policies and Taxation on Land as a Resource; Economic Principles in Land Use Planning; etc.	6 Hrs.
Unit-6: Land Uses and Land Values Determination of Price of Land: Ricardian Theory of the Land Market, Agricultural Land Rent Theory by Von Thunen, Alonso's Bid Rent Function Theory, etc.; Approaches to Industrial Location Theory: Least Cost Approach, Market Area Analysis, Profit Maximization Approach, etc. Economic Development & Economic Growth - Definitions, Concepts, Characteristics, Comparisons, etc.; Measurement of Economic Development, Human Development Index, Poverty, Policies and Strategies in Economic Planning, etc.	6 Hrs.

Reference Books:	
1.	The Economics of Development and Planning by M. L. Jhingan, Vrinda Publications, Delhi
2.	Economics and Land Use Planning by Alan W. Evans, Balckwell Publishing, Oxford
3.	Urban Land Economics by Michael Goldberg and Peter Chinloy, John Wiley & Sons, USA
4.	Planning and Economics of Cities by Prasanna K. Mohanty
5.	Industrial Locations – Principles, Practice and Policy by J. W. Harrington and Barney

Reference Books:	
	Warf, Routledge Publications, London
6.	Urban Economics by Arthur O'Sullivan, McGraw-Hill International Education, Singapore
7	Sociology- Principles of Sociology with an Introduction to Sociological Thought by C. N. Shankar Rao, Published by S. Chand & Company, New Delhi
8	The New Urban Sociology by Mark Gottdiener & Ray Hutchison, Published by Westview Press
9	Urban Sociology by N. Jayapalan, Published by Atlantic Publishers & Distributors (P)

Planning for Urban Utilities and Services (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes:	
CO1	Students will be able to identify the objectives of urban utilities and services.
CO2	Students will be able to evaluate water treatment methods, their sequence, and associated benefits
CO3	Students will be able to analyze the case studies of waste management techniques
CO4	Students will be able to assess the implications of fire protection planning on land use

Unit 1: Introduction to Urban Utilities and Services Role of utilities and services in the development of urban areas, Role of Planner in provision of urban networks and services, Objectives of Utilities and Services, CPHEEO manual guidelines, URDPFI Guidelines, etc.	6 Hrs.
Unit 2: Water Supply Norms and standards of water supply, planning for water supply; source of supply, source analysis, quality and quantity; issues related to transmission of water, treatment methods, sequence, benefits; treatment plant location, distribution systems suitable in large city, small town; basic requirements, design guidelines; technological options for water supply; aspects of water distribution in far flung areas; standards and locations for pumping stations; water supply projects financing and management; legal rights, water pricing, water distribution systems in buildings and their design, significance and methods and advantages of water harvesting system, government initiative for water harvesting system, etc.	6 Hrs.

Unit 3: Sewage and Sanitation System Sewage: Sewage disposal methods and their advantages and disadvantages, quantity of sewage, Principles of sewage system layout, Different methods of sewage treatments; Issues related to development parameters. Collection, transportation and treatment of sewage; low-cost appropriate technologies for sanitation, standards for Indian cities, sanitary sewer system network and layout, procedure of planning, sewer appurtenances and master plan, case study of innovative approaches of sewage disposal in urban area.	6 Hrs.
Unit 4: Wastewater Management Characteristics of wastewater, description and analysis of the different factors that affect the quantity and quality of wastewater generated in urban environments; components and activities commonly used to assess and determine the wastewater quality and strength; review of typical wastewater compositions as a function of their origin and precedence; Industrial pollutants and their effects, Principles of the water bound disposal system, storm water drainage systems, etc.	6 Hrs.
Unit 5: Solid Waste Management Elements of solid waste management, classification and characteristics of solid wastes, on site collection, storage, transportation and disposal of solid wastes, processing and treatment of solid wastes, incineration, pyrolysis, land filling and cost aspects of different methods of solid waste, solid waste management issues in Indian Cities. Various social aspects of solid waste management, community participation and involvement of NGOs in efficient solid waste management, etc.	6 Hrs.
Unit 6: Fire Protection and Electricity Planning for fire protection services and space standards; Locational criteria, implications on land use and density. Planning for electrification, general scenario, services and space standards of transformers; load forecasting. Institutional arrangements for municipal services, sector issues and assessments, financing systems, administrative set-up, people's participation, etc.	6 Hrs.

Reference Books:	
1.	Infrastructure Planning Handbook by Alvin S. Goodman & Makarand Hastak
2.	Infrastructure Management by W. R. Hudson, R.C.G. Hass, W. Uddin
3.	Water Supply and Waste- Water Engineering by B S N Raju
4.	Central Public Health and Environmental Engineering Organization (CPHEEO) Manual
5.	URDPFI Guidelines (Volume I and II), Ministry of Urban Development, Government of India, 2015

Land and Building Valuation

(PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to learn Science and Art of Valuation
CO2:	Students will be able to analyze Land and Building Market.
CO3:	Students will be able to apply various Valuation Approaches and Methods
CO4:	Students will be able to learn about various Land Related Legal Provisions.

Unit-I: Definition and Scope of Valuation Science and Arts of Valuation; Scope of Valuation and its importance in Planning; Eminent Domain; Defining Value – Use Value and Exchange Value; Different Kinds of Value; Different types of Rents; Definition of Terms - Gross Income, Net Income, Sinking Fund, Year's Purchase, Depreciation, Obsolescence, Amortization, Annuity, Capitalized Value, Land Locked Land, Return and Double Frontage, Adverse Possession, etc.; Purpose of Valuation; Valuation Process; etc.	6 Hrs.
Unit-2: Real Estate – Concept and Context Real Estate - Asset and Property, Intangible and Tangible Asset, Overview of Real Estate Valuation; Characteristics of Landed Property, Real Estate Market, Bundle of Property Rights; Types of Interest and Rights in the Property – Freehold Interest, Lease Hold Interest, Easement Rights, Life, Fee Tail, Fee Simple Estate; Transfer of Interest and Right in Property; Right to Property - Acquisition subject to Payment of Amount, Acquisition subject to Payment of Compensation, Constitution 44 th Amendment Act, 1978;	6 Hrs.
Unit-3: Valuation Approaches and Methods Real Estate Market Mechanism; Principles of Comparable Evidence; Bases of Value; Principal Valuation Approaches; Bases other than Market Value; Market Approach- Heterogeneity and Multiplicity of Principle Real Estate features; Ranking and Evaluation Grid; Belting Method of Valuation; Elements of Investment Market and Real Estate – Real Estate as an Investment, Capital Market, Principles of “Yield”, Construction and Use of Valuation Tables; etc.	6 Hrs.
Unit-4: Other Valuation Approaches and Methods The Income Approach – Perpetual Income Flow, Outgoing, Market Rent, Effect of Demand and Supply on Rent, etc.; The Cost Approach – Reproduction verses Replacement Cost, Replacement Cost Method, Reproduction Cost Method, Contractor's Method of Valuation, Depreciation, Application of Cost Approach, Account Method, etc.; Discounted Cash Flow Techniques; Developed Property –	6 Hrs.

Trade Related Property, Valuation based on Profit; etc.	
Unit-5: Indirect Methods of Valuation Travell Cost Method to Estimate Economic Use Values Associated with Ecosystems or Sites that are used for Recreation; Contingent Valuation for the Valuation of Non-Market Resources, such as Environmental Preservation or the Impact of Contamination; Hedonic Pricing Method to Estimate Economic Values for Ecosystem or Environmental Services that Directly Affect Market Prices; etc.	6 Hrs.
Unit-6: Land Related Act Registration Act, 1908, Annual Statement Rate (ASR), Maharashtra Land Record Code 1966, Urban Land (Ceiling and Regulation) Act (ULCRA) of 1976, Maharashtra Rent Control Act, 1999; Maharashtra Apartment Ownership Act, 1970; Societies Registration Act, 1860; Real Estate (Regulation and Development) Act 2016; Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013; etc.	68 Hrs.

Reference Books:	
1.	J. A. Parks Principles and Practice of Valuation Edited by D. N. Banerjee Published by Eastern Law House
2.	Theory and Practice of Valuation by Roshan Namavati Published by Lakhani Book Depot
3.	Mastering Real Estate Valuation by Syamales Datta Published by Syamales Datta
4.	Valuation of Real Properties by S. C. Rangwala, Published by Charotar Publishing House
5.	Basics in Real Estate Valuation by P. T. Hardikar, Published by P. T. Hardikar
6.	Writing a Report – Real Estate Valuation by P. T. Hardikar, Published by Sejal Nelson Macwan, Anand, Gujarat

Semester-III

Planning and Design Studio - III (PCC)								
Credit: 4				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
0	0	8	0	--	--	--	50	50

Course Outcomes	
CO1:	Students will be able to gain knowledge of the processes that are shaping various spatial forms, their planning and development process at the regional level
CO2:	Students will be able to comprehend processes of plan preparation and data-based analysis techniques for identifying issues and potentials for an urban settlement.
CO3:	Students will be able to develop a critical understanding of the contradictions in urban, rural, and regional spaces and their implications in planning through analysis techniques.
CO4:	Students will be able to evolve regional planning strategies, and policies, and devise implementation mechanisms for balanced regional growth of a region
Prerequisites: Planning and Design Studio – II, Re-exam is not allowed being Group Exercise.	

Course contents: The focus is on the preparation of a regional plan based on a field visit to the chosen study area.

Context of Regional Plans Introduction to Region Concept of regional planning: nature, objectives, levels and aims; Concept of a region, types, and regionalization. Understanding the contents of various types of regional plans and their linkages with higher and lower order plans, District planning in the context of 73rd and 74th Constitution Amendment Acts; District Planning Committees (DPCs); Metropolitan Planning Committees (MPCs) and Ward Committees
Generation of Existing Regional Scenario Formulating goals, objectives, methodology, identification of data sources, analysis of data available, field surveys, and preparation of schedules would form another important step in preparing a regional plan. Fieldwork involving visits to the field study area, conduct of field surveys, and collection of data from secondary sources at sectoral and block level, etc.
Analysis and Synthesis Identification of development issues, using analysis techniques like Rank Size Rule, Settlement patterns, Central place theory; Loschian theory; Location quotient regional

networks potential thrust areas and constraints: sectoral and spatial; designing of alternative planning strategies, settlement patterns and development strategies; Sectoral and spatial prioritization, phasing, financial plans, institutional mechanisms, legislative framework, management plans

Plan, Policies and Proposals

Preparation of Regional Plan Document along with drawings, etc; Preparation of policies and proposals with different scenarios and identification of priority areas; phasing and monitoring; governance structures for implementation; regional land utilization plan and the plan document, etc.

Reference Books:

1.	Planning Commission, 2006, Manual of Integrated District Planning, Planning Commission, New Delhi
2.	Jyotirmoy Sen, 2024, Introduction to regional planning and development, Rawat Publications
3.	Glasson, J., 1978, An Introduction to Regional Planning: Concepts, Theory and Practice, University of California, Berkeley.
4.	N. Mani, 2012, Infrastructure Development and Financing in India, New Century Publications, New Delhi, ISBN: 978-8177083095
5.	S. K. Kulshrestha, 2012, Title Urban and Regional Planning in India: A Handbook for Professional Practice, SAGE Publications, 978-8132117025

Internship (Internship)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
0	0	0	0	--	--	100	-	-

Course Outcomes

CO1:	Students can determine career positions and occupations along with the qualities and training required to obtain those positions.
CO2:	Students will be able to comprehend the workplace settings, operating procedures, the department/company and its products, and other organizational concepts.
CO3:	Students will be able to identify career paths that may be of interest through firsthand exposure to the profession
CO4:	Students will be able to develop additional skills including office administration, software skills, and developing a broader network to ensure career readiness.

Prerequisites: Internship -I

Course Contents:

Internship – II furthers the objectives of Internship - I by offering the opportunity to undertake training in a planning (or related) organization during summer vacation between the sixth and seventh semesters for a period of 6-8 weeks.

The student will also submit a Report highlighting the Profile of the Planning Office, its organization, key work areas, etc; an introduction to the project(s) worked upon during training; a planning brief; methods employed; and planning-design solutions/proposals.

The students will also be required to present their work through drawings/visuals and PowerPoint presentations in the form of a Seminar to the faculty and students of the Department over the seventh semester.

Urban Management and Governance (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand Urban Management and Governance
CO2:	Students will be able to relate Legislations Pertaining to Management and Governance
CO3:	Students will be able to analyze Urban Governance and Institutional Reforms
CO4:	Students will be able to plan for Urban Management and Finance

Unit 1: Overview of Governance Introduction to Urban Governance, Definition, Concepts, Components, Government and Governance, Hierarchy and Structure, Forms of Governance, Process of Inclusion and Exclusion, Framework of National / State / Local Self Government – Principles of Subsidiarity, Complimentarily and Equity; Local Governance Framework, etc.	6 Hrs.
Unit 2: Legislations Pertaining to Governance Institutional Frame and Mechanism for Governance as Envisaged in 73 rd and 74 th Constitution Amendment Acts. Panchayati Raj Institutions and Constitutional Sanction; Powers and Functions of Municipal, Governments and PRIs, Further Implementation and Execution and Management Process, Functions and Powers, Structure and Funding Resources to the Local Government, etc.	6 Hrs.
Unit 3: Institutions and Organizations Various National, State, Regional, District and Local Level Organizations Involved in Urban Development and Management in India, their Background, Functions, Powers, Organization Structure and Resources, Differences between Institutions and	6 Hrs.

Organizations; Approaches to understanding Organizations; types, Structure and Functions, their Interface and Conflicts, Reach, and their Effectiveness, etc.	
Unit 4: Urban Governance and Institutional Reforms Administrative Reforms and Structural Reforms, Indicators of Good Governance: Formulation of Governance Index; Citizens' Charter; Citizens' Participation in Urban Governance: Institutional and Legal Framework; Ward/Wards Committee; Constitution, Powers and Functions of Area Sabhas; E- Municipal Governance; Performance Evaluation of Local Governments: Service Level Benchmarking; Liberalization and Globalization and its Impact on Urban Settlements, etc.	6 Hrs.
Unit 5: Urban Management Key to Successful Urban Management, Team Building and Leadership; Conflict Management; Change Management, Stress Management, Personnel Management, Manpower Planning, Performance Appraisal, Motivation, Monitoring and Improvement in Moral etc., Parastatal Agencies: Role of Improvement Trusts, Development Authorities, SEZs and Special Purpose Vehicles in Urban Management; Interagency Cooperation, etc.	6 Hrs.
Unit 6: Municipal Finance Constitutional Provision for Local Finance, Plan and Non Plan Financing; Categorization of Municipal Sources of Revenue: Internal Vs. External, Revenue, Capital Vs. Revenue Receipt; Reforms in Municipal Finance, Local Resource Mobilization, Local Government Budget, Fiscal decentralization, Other Options of Finance: Value Capturing Mechanism / External Borrowings (Bilateral and Multilateral) and Corporate Funding as CSR, etc.	6 Hrs.

Reference Books:	
1.	William I. Goodman and Principles and Practice 1968 Goodman Eric C. Freund of Urban Planning (Municipal Management)
2.	High Powered Expert Report on Indian Urban 2011 NIUA/MoUD Committee (under Infrastructure and Chairpersonship of Ms. Services Isher Ahluwalia
3.	McKinsey Global Institute India's Urban 2010 McKinsey Global Awakening: Building Institute
4.	India: The Challenges of Urban Governance, O.P. Mathur, National Institute of Public
5.	Urban Governance and Management: Indian Initiative, P.S.N. Rao, Kanishka Publisher
6.	Elements of Urban Management. Kenneth J. Davey. ISBN 0-8213-2424-1, 55 pages, published November
7.	Urban Governance and Management: Indian Initiative, P.S.N. Rao, Kanishka Publisher
8.	14 th Finance Committee Report (Chapter on Funds Transfer to ULBs

Public Policy and Planning (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to summarize basic concepts of Public Policy.
CO2:	Students will be able to evaluate the Policy Making Process.
CO3:	Students will be able to analyze the process of transforming policies into the real world.
CO4:	Students will be able to relate Public Policy and Planning.

Unit 1: Definition of Policy and Stages of Policy Making Process Definition, Need for Evolving, Policy for Private Sector and Public Sector, Types of Public Policies, Central-State linkage. Issue and Stakeholders Identification, Setting Agenda, Policy Formulation, Policy Adoption / Legitimization, Implementation, Assessment / Evaluation, Review, Tasks involved in issue identification and Policy Formulation, Policy Making - Organizational, Political and Wider Public Context, etc.	6 Hrs.
Unit 2: Attributes of a Good Policy Making Process and Skills of Policy-Makers Up-to-date knowledge of the Subject Matter made available, use of relevant data and Analytical Tools, grouping together related sectors having significant policy interactions, Impact of Policy for one Sector on other Sectors considered, Analysis of trade-offs, Assessment of Winners and Losers from a given Policy, Involving the implementers and those likely affected in Policy Formulation, Independence to Policy Makers. etc.	6 Hrs.
Unit 3: Structure of Policy Document and Transforming Policy into Real World Title, description of the problem, proposition of the Preferred Policy, comparative analysis of Policy Options and discussion of their impact, justification of the proposed policy, concluding remarks, reference list, writing guidelines, etc., procedures and guidelines for Policy Implementation, pilot roll-out and validation, tools required, organizational structure, assigning roles, interaction between the policy planners and implementers, capacity building of implementers, etc.	6 Hrs.
Unit 4: Policy Monitoring and Policy Review Period of monitoring and persistence, assessment with respect to pre-identified	6 Hrs.

parameters in terms of desired objectives, identifying issues in implementation, simultaneous corrections in procedural aspects, etc., frequency of review, how to measure success / failure, parameters of review, translating review, findings into revision / clubbing / replacement / withdrawal of the policy, some Public Policies (outside Urban Planning) and reasons of success / failure, etc.	
Unit 5: Public Policy Making - Issues and Remedies and Public Policies Related to Urban Planning and Development Issues - excessive fragmentation in thinking and action, excessive overlap between policy making and implementation, lack of non-governmental inputs and informed debate, lack of systematic analysis and integration prior to Policy Making, formulating right policy, and sticking to it, Remedies- reduction in fragmentation, segregating policy - making from implementation, decentralizing implementation authority, improving integration and the flow of knowledge from outside Government, improving competence and skills of Policy Making Manpower, study of Policies of Central Govt. and selective State Govts., Housing Policy, Integrated Township Policy, Transit Oriented Development, Change of Land Use-Zone, etc.	6 Hrs.
Unit 6: Public Policy and Planning: From development as Economic Growth to Human Development - Indian State and its developmental trajectory, Social Indicators of Development; India's Developmental Strategy - Planning Commission to NITI Aayog, Poverty: Measurement and Alleviation Programmes, Role of Private Sector; Impact of Privatization – Agriculture, Labor, Water; Current Challenges – Urbanization, Technological Dependence, Development and Equity: Regional Imbalances, etc.	6 Hrs.

Reference Books:	
1.	Anderson J.E., (2006) Public Policy-Making: An Introduction, Boston, Houghton
2.	Ashford, Doug (ed.), (1992), History and Context in Comparative Public Policy, Ithaca, NY: University of Pittsburgh Press.
3.	Gerston Larry N., (2004), Public Policy Making: Process and Principles, Armonk, M. E. Sharpe
4.	McCool, Daniel C. (ed.), (1995), Public Policy Theories, Models, and Concepts: An Anthology, NJ: Prentice-Hall
5.	Pal, Leslie A., (1992), Public Policy Analysis: An Introduction, 2nd ed. Toronto: Nelson.
6.	Cities and Public Policy -An Urban Agenda for India by Prasanna K. Mohanty, Sage Publication
7.	George E. Peterson and Patricia C. Annez, Financing Cities 2007 Sage Publishers, World Bank
8.	Public Policy Analysis: An Introduction, 2nd ed. Toronto: Nelson. Xun Wu et.al (2013), The Public Policy Primer, Routledge, London, etc.
9.	The Oxford Handbook of Public Policy, Oxford University Press, New York. Pal,

Reference Books:	
	Leslie A., (1992),
10.	Ahluwalia, Isher Judge, Kunbur, Ravi, and Mohanty, P.K., Urbanization in India Challenges, Opportunities and the Way Forward, Sage India, New Delhi, 2014.

Professional Practice and Ethics (VEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1	Students will be able to identify scopes for professional practice.
CO2	Students will be able to restate and analyze organizations, management of planning and development authorities.
CO3	Students will be able to comprehend & evaluate the roles and responsibility of practicing professionals.
CO4	Students will be able to practice professionally with morals and ethics.

Unit-1: Overview of Governance Definition, Concepts, Components, Government and Governance; Hierarchy and Structure, Forms of Governance, Process of Inclusion and Exclusion; Legislations Pertaining to Governance Institutional Frame and Mechanism for Governance as envisaged in the 73 rd and 74 th Constitution Amendment Acts; Process of Decision Making, Implementation, Execution and Management; Functions and Powers and Structure and Funding Resources to the Local Government and their performance; etc.	5 Hrs.
Unit-2: Organization and Management Aims and Objectives of Professional Institutes, Differences between Institutions and Organizations; Approaches to Understanding Organizations; Types, Structure, and Functions, their Interface and Conflicts; Methods, Process and Evaluation; Personnel Management, Manpower Planning, Performance Appraisal; Motivation, Monitoring and Improvement in Moral; Role In Inter-Disciplinary Groups: Appreciation of the Decision-Making Processes and the Process in Relation to Varied Consultancy Assignments of Planning; etc.	5 Hrs.
Unit-3: Professional Practice Professional Role and Responsibility of Planning Consultants; Professional Values, Morals and Ethics; Integrity, Service Delivery, Civic Virtue, Respect for Others; Code of Conduct and Scale of Professional Charges; Professional Responsibilities and Rights; Assessment of Safety and Risks; Formulation of Project Proposal and	5 Hrs.

Outlines, Consultancy Agreements and Contracts; Managerial Aspects; etc.	
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Reference Books:	
1.	Reading Material on Project Formulation & Appraisal, by Dr. A. N. Sachithanandan, by Institute of Town Planners, India, New Delhi.
2.	Urban and Regional Planning in India: Handbook for Professional Practice, Kulshrestha, S. K. Sage Publications, New Delhi.
3.	Profession Fee Charges Scale Code Conduct Conditions of Engagement Published by Institute of Town Planners, India, New Delhi.
4.	Urban and Regional Development Plan Formulation Implementation (URPDFI) Guidelines Published by Ministry of Urban Development, Government of India
5.	Professional Ethics & Human Values by Govindarajan, M; Natarajan, G. M. & Senthilkumar, V.S. Published by Prentice Hall, New Delhi.

Planning Thesis Preliminaries (Project)								
Credit: 4				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
0	0	0	4	--	--	--	70	30

Course Outcomes	
CO1	Students will be able to apply knowledge gained by the students to produce a piece of research work on their own effort under the guidance of a supervisor.
CO2	Students will be able to identify problem and its analysis
CO3	Students will be able to learn application of research techniques acquired by them.
CO4	Students will be able to develop competency to work in professional fields.

Work to be completed
Finalization of topic, Review of literature pertaining to topic, Identification of scope / gap based on literature review. Framing of Aim & Objectives, Scope & Limitation, Methodology to be followed, Identification of case study areas
Methodology
Allocation of supervisor will be done at the end of Semester-VI based on availability of supervisor, domain expertise of the supervisor, student's performance in the previous semester and interests / preferences. The students will have to choose the topic for dissertation during Semester-III in consultation with the supervisor and Approval of HOD

to avoid duplication of topic. Dissertation shall be a work in the application or development of new concepts of planning at different levels of original nature. The originality of the work will be the key to this dissertation. The performance of the students will be evaluated as per the Departmental Policy in this regard.

Semester-IV

Planning Thesis (Project)								
Credit: 10				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
0	0	0	10	--	--	--	70	30

Course Outcomes	
CO1	Application of knowledge gained by the students to produce a piece of research work on their own effort under the guidance of a supervisor.
CO2	Problem identification, problem analysis and drawing of conclusions.
CO3	Learn application of research techniques acquired by them.
CO4	Develop competency to work in professional fields.
Prerequisites: Planning Thesis Preliminaries	

Methodology
This is in continuation of Dissertation-I. Students are required to carry out site visits to the case study area and present findings based on site visits, surveys conducted, data collection and analysis, result & discussion, etc. before the Departmental Committee and submit draft report. The student has to defend his or her work before a Jury comprising Chairman, Supervisor, Internal and External Examiners. Students are required to submit final dissertation report incorporating comments given by Jury, if any.
Work to be Completed
Site visits to case study area Reconnaissance / Preliminary survey Conducting detailed survey Analysis of data collected. Hypothesis testing if any. Result & discussion Submission of dissertation report.

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Program Elective Courses

Urban Design and Place Making (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand the concept of Urban Design
CO2:	Students will be able to relate Urban Design and Urban Form
CO3:	Students will be able to understand concept of Place Making
CO4:	Students will be able to appraise Urban Planning and Place Making

Unit 1: Introduction to Urban Design Definition of Urban Design, Urban Design as Interface between Architecture and Planning; City as a Three-Dimensional Entity; Activity and the morphology of places; Study of Volumes and Open Spaces at all Spatial Levels; Form, Size and Structure of Cities; A brief Historic Review of the Development of the Urban Design Discipline and Principles, etc.	6 Hrs.
Unit 2: Elements of Urban Design Urban Form as Determined by Inter-Play of Masses, Voids, Building Typology; Scale, Harmony, Symmetry, Colour, Texture, Light and Shade; Dominance, Height, Urban Signage and Graphics; Organization of Spaces and their Articulation in the Form of Squares, Streets, Vistas and Focal Point; Image of the City and its Components; Urban Transportation, etc.	6 Hrs.
Unit 3: Urban Form and its Control Tangible and Intangible Aspects of City Design; Universal Values of Urban Design; an overview of Urban Design Theories; Public Realm of Cities; Urban Form Determinants; Urban Design and its Control; Urban Design and its Control; Control of Visual Pollution; Agencies Responsible for ensuring better Urban Design - their Roles, Powers and Limitations, etc.	6 Hrs.
Unit 4: Introduction to Place Making Concept of Place Making, Criticisms of Modern Planning and Design, Concepts of Space and Place, Understanding Place and Identity, Concept of Genius Loci, Urban Design as Place Making, Dichotomies in Urban Design, Histories of Place - Social, Cultural and Political Histories of Idea of Place and its Design; Public Space and Place, Street as Public Space, etc.	6 Hrs.

Unit 5: Aspects of Place Making Tangibles and Intangible Aspects of Place, Place - Drawing Ideas from Arts, Literature and other Medias, Public Space in India- Ideas and Concepts, Urban Narratives, Place Making Principles, Economics of 'Place', Role of Urban Design in Shaping Urban Place and Space, Development Plans and Urban Form, Qualitative Surveys and Aspects of Place Making, etc.	6 Hrs.
Unit 6: Communicative Design The Deliberation Process, Roles of Arts and Culture in Urban Development, Participatory Design, Co-Design, Urban Design and Place Making as Evolving Process, Interface of Urban Design Discipline with Landscape, Transport, Conservation, Management, Climate Change and Urban Form, Urban Sustainability Issues, Technological Advancement and Urban Design-Place Making.	6 Hrs.

Reference Books:	
1.	Urban Design, 2005 Edition by John Lang, Elsevier Publication
2.	Image of the City 2009 Edition by Kevin Lynch by Minnesota Press
3.	Urban Design - The Composition of Complexity, 2011 Edition, by Ron Kesprisin by Routledge, New York
4.	Doing Research in Design 2012 Edition by Cristopher Crouch and Jane Pearce by Berg, New York
5	Edmund Bacon, Design of Cities, Thames and Hudson, London 1967
6	Kostof, Spiro (1999), The City Assembled: The Elements of Urban Form through History Thames and Hudson
7	Gordon Cullen, The Concise Townscape, Van Nostrand, Reinhold Co, 1961
8	Short, J. R., (1996). The Urban Order: Introduction to Cities, Culture, and Power. John Wiley & Sons

Smart Cities (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand the concept of Smart City
CO2:	Students will be able to examine challenges and opportunities in the development of Smart Cities
CO3:	Students will be able to plan and develop Smart Cities

CO4:	Students will be able to design Smart Infrastructure for cities
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Unit 1: Introduction and Fundamentals of Smart City Introduction of Smart City, Fundamental of Smart City, Concept of Smart City, Objective for Smart Cities; History of Smart City - World and India; Need to Develop Smart City; the Evolution of Cities up to the Present Day; Urbanization and its Impacts on Cities; Urban Evolution in India, Changing Patterns of Urban Growth, Quality of Life in the City, etc.	6 Hrs.
Unit 2: Planning and Development of Smart Cities Efficiencies and Inefficiencies in Cities; Challenges and Opportunities, Eco Challenges in the Contemporary Cities; Principles of Green and Smart Cities; International Initiatives Including UN and EU Level; Worldwide Policies for Smart City Government of India - Policy for Smart City, Mission Statement and Guidelines, Smart Cities in India, etc.	6 Hrs.
Unit 3: Fundamentals of Sustainable Development Fundamentals of Sustainable Development; Sustainability and “Sustainable Development, Climate Change Indicators, and their Meaning for Cities; Mobility and Transportation within Urban Areas; Green Technologies in Cities; Green Buildings and Ecological Footprint, Green Infrastructure, Urban Sustainability Foundations, Models and Theories, etc.	6 Hrs.
Unit 4: Governance of Smart Cities Role of Local Authorities and Public Participation in Shaping the Cities; Smart People, Smart Environment, Smart Living, Impact of ICT on the Social Fabric, Place Making and Walkability; City Wide Network; Wireless Networks; IoT and Smart City; Blockchain, E-Government and Smart City; Artificial Intelligence (AI) Analysis & AI Decision Support System, Alternate Reality, Virtual Reality, etc.	6 Hrs.
Unit 5: Management of Smart Cities Study of the Existing Cities, Finding Problems and Designing for Smart Cities, Development and Exhibition of a Feasible Innovation Project; Determining the Scope, Defining the Idea, Establishing Objectives, Identifying Partners, Selecting and Acquiring Tools and Knowledge, Planning and Presentation, Infrastructure Management System and Policy for Smart City, etc.	6 Hrs.
Unit 6: Smart Infrastructure Energy and Ecology, Solar Energy for Smart City, Smart Housing, Safety, Security, Disaster Management, Economy, Cyber Security, Project Management; Intelligent Transport Systems - Smart Vehicles and Fuels, GIS, GPS, Navigation System, Traffic Safety Management, Mobility Services, city Integrated Infrastructure Management Systems for Smart City, etc.	6 Hrs.

Reference Books:	
1.	How Green is Cities? By Dimitri Devuyt, Colombia University Press, New York
2.	Smart City on Future Life - Scientific Planning and Construction by Xianyi Li
3.	The Age of Intelligent Cities: Smart Environments and Innovation-for-all Strategies (Regions and Cities) by Nicos Komninos
4.	Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia by Anthony Townsend
5	Giffinger, Rudolf; Christian Fertner; Hans Kramar; Robert Kalasek; Nataša Pichler-Milanovic; Evert Meijers (2007). "Smart cities – Ranking of European medium-sized cities". Smart Cities. Vienna: Centre of Regional Science
6	Hudson W.R., Haas R., Uddin W., Infrastructure Management, McGraw-Hill, 1997
7	Mission statement & guidelines on Smart City Scheme". Government of India - Ministry of Urban Development http://smartcities.gov.in/upload/uploadfiles/files/Smart City Guidelines (1).pdf

Sustainable Urban Development (PCC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to relate the concept of Sustainable Urban Development.
CO2:	Students will be able to interpret Ecosystem and Sustainability
CO3:	Students will be able to construct Frameworks of Sustainability
CO4:	Students will be able to prioritize Critical Perspectives on Sustainable Development

Unit 1: Introduction to Sustainable Development	6
Definitions, Concepts and Parameters in Sustainable Development with Particular Reference to Brundt Land Commission (SDG), Later UN Summits (Rio Summit, etc.) and Outcome; Sustainable Urban Development Goals, Agenda 21, Eco-City Approach, etc.; Regulatory and Policy Regime; Changing Perspectives in Man-Environment Relationship with Focus on Issues of Population, Urbanization, Resource Depletion and Pollution; etc.	Hrs.
Unit 2: Ecosystem and Sustainability:	6
Fundamentals of Ecology - Types of Ecosystems and Interrelationships, Factors Influencing Sustainability of Ecosystems, Ecosystem Restoration - Developmental Needs; Introduction to Sustainability and its Factors; Requirements for Sustainability: Food Security and Agriculture; Renewable Resources - Water and Energy, Non-Renewable Resources, Factors and Trade-Offs; Sustainability	Hrs.

Conflicts; a Conceptual Framework for Linking Sustainable Development, etc.	
Unit 3: Dimensions to Sustainable Development Society, Environment, Culture and Economy; Current Challenges - Natural, Political, Socio-Economic Imbalance; Sustainable Development Initiatives and Policies of Various Countries: Global, Regional, National, Local; Needs of Present and Future Generation - Political, Economic, Environmental, etc.	6 Hrs.
Unit 4: Gauging Sustainable Development Sustainability and Development Indicators and SDGs, UN's Outlook of Sustainable Development and Efforts, UN SDGs - Structure, Governance and Partnerships; Communities / Society: Ensuring Resilience and Primary Needs in Society; Biosphere: Development Within Planetary Boundaries; Strengthening Institutions for Sustainability; Shaping a Sustainable Economy, etc.	6 Hrs.
Unit 5: Frameworks of Sustainability Analytical Frameworks in Sustainability Studies, Sustainability Metrics: Criteria and Indicators; the Significance of Quantitative and Qualitative Assessments of Sustainability; Current Metrics and Limitations; Metrics for Mapping and Measuring Sustainable Development; Application of the Metrics in Real Scenarios, etc.	6 Hrs.
Unit 6: Critical Perspectives on Sustainable Development Resource Management and Implications on Sustainable Development - Implications for Valuation, Risk Assessment; Integrated Decision-Making Processes: Requirements of Information, Information Flow, Data Analytics, Learning from Historical Data, Multicriteria Decisions, Multi-Level Decisions, Participatory Decisions; Translating Impact Chains to Information Flows - Impact of Governance and Policies, etc.	6 Hrs.

Reference Books:	
1.	Handbook on Urban Sustainability by Munier, Nolberto. Springer 2007
2.	Climate Resilient and Sustainable Urban Development, The Energy and Resource Institute. TERI 2011
3.	Shanghai Manual, A Guide for Sustainable Urban Development of the 21st Century, Union Nations 2010
4.	Rogers, Peter P., Kazi F. Jalal, and John A. Boyd. "An introduction to sustainable development." (2012).
5.	Sachs, J. D. 2015. The Age of Sustainable Development. Columbia University Press, New York.
6.	Elliott, Jennifer. 2012. An Introduction to Sustainable Development. 4th Ed. Routledge, London.
7.	Our Common Journey: A Transition Toward Sustainability. National Academy Press, Washington D.C. Soubotina, T. P. 2004.

Participatory and Inclusive Planning (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand the concept of Inclusive Planning
CO2:	Students will be able to relate the role of Stakeholders in Inclusive Planning
CO3:	Students will be able to appraise the role of the Informal Sector in development
CO4:	Students will be able to design Participatory Approach of development

Unit 1: Urban Poverty Dimensions of Urban Poverty, Magnitude of Problem, Urban Poverty Alleviation Programs, Impact of Macro-Economic Structural Adjustment Policies on Poor Urban Households. Basic Needs: Development of the Concept of Basic Needs; Identification of Basic Needs and their Provision for Various Target Groups and Informal Sectors; Standards for Basic Needs, etc.	6 Hrs.
Unit 2: Stakeholders Profile Urban Poor, Informal Sector, Gender, Children, Elderly, Disabled, Displaced People, etc.; Slums - Dimensions, Causative Factors, Determinants, Location Characteristics of Settlements; Informal Sector - Growth, Characteristics, Functions, Economic Contributions, Linkages with Formal Sector, Impact on Urban Development; etc.	6 Hrs.
Unit 3: Migratory Impulses and Impact on Informal Sector Characteristics of Migrants and their Association with Growth of Informal Sector; Socio-Economic Deprivation and Informal Sector; Development of Informal Sector Concept; Role of Informal Sector in Housing Stock, Economy, Commercial Activities, etc.; Implications in Physical Planning, etc.	6 Hrs.
Unit 4: Consequences of Spontaneous Growth Study of Major Aspects; Spontaneous Living and Working, their Characteristics and Functions in Urban Context, Actions for Improvement; Appraisal of the Role of Government, Private and Voluntary Organizations; Existing Management; Their Organizational Set-Up and Limitations; Planning and Development of Urban Settlements in Respect of Spontaneous Growth; etc.	6 Hrs.
Unit 5: Delivery of Basic Services to Urban Poor Community Planning Approach, Low-Cost Alternatives, Institutional Reforms	6

Approach, Inclusive Zoning, Development and Building Regulations, System, Structure, Functions, Powers, Process and Resource, Performance, Interface with NGO's, CBOs and other Local, State, National and International Organizations, role of elected representatives in participatory processes; etc.	Hrs.
Unit 6: Participatory Planning Process Participatory Planning: History and Significance, Understanding Participatory Processes; Methods of Participation; Institutional Arrangement for Public Participation Methods; Techniques of Participation; Stakeholders' Participation, Roles, and Responsibilities (Including Civil Society Organizations), etc., Access to Government by Various Stakeholders, methods of communication, etc.	6 Hrs.

Reference Books:	
1.	Informal sector in Indian Economy by Dipa Mukherjee, Rawat Publications, 2009
2.	Revisiting the Informal Sector by Sarabjit Chauhan and Ujjani Mukhopadhyay, Springer Publications, 2010
3.	A General Equilibrium Approach, Informal Sector Concept, Dynamics Linkages and Migration by Kishor C. Samal, Concept Publishing Company, New Delhi, 2008
4.	Forester, J. (1999) The Deliberative Practitioner: Encouraging Participatory Planning Processes, MIT Press, Massachusetts.
5	Inclusive Planning and Social Infrastructure by A. K. Jain

Urban Transformation (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand Urban Transformation
CO2:	Students will be able to relate Spatial and Economic Transformation of Cities
CO3:	Students will be able to corelate Social and Political Transformation of Cities
CO4:	Students will be able to plan for Transformed City

Unit 1: Historical Overview of Urban Development Defining Urban, the Process of Urbanization, Causes and Effects of Urbanization, Differences between Characteristics of Urban Areas and Urbanization in Developing and Developed Countries, Historic Planning Principles that Paved way for the Recent Principles, Emerging Concepts under Urban Transformation, Planning Cultures and Planning Models, etc.	6 Hrs.
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Unit 2: Spatial Transformation of Cities Urban Form and Architecture, Urban Transformation in Heritage Sites, Landscapes, Waterfronts, Public Spaces, Urbanization and Regional Cities, etc.	6 Hrs.
Unit 3: Economic Transformation of Cities: Commodification of Urban Space, Political Economy of Urban Transformation, Financial Arrangements in Urban Transformation, Sustainable Transformation, etc.	6 Hrs.
Unit 4: Social and Political Transformation of Cities: Cultural Turn, Social Inclusion, Social Justice, Urban Poverty, Segregation, Exclusion and Quality of Urban Life, Gentrification, etc.	6 Hrs.
Unit 5: Planning the Transformed City Urban Planning Process, Actors Involved, Planning Network and Network Management, Strategies and Policies, Green Interventions, Disaster Management, etc.	6 Hrs.
Unit 6: Critical Urban Geography Current Topics (cities in the pandemics, the role of Industry 4.0, etc.)	6 Hrs.

Reference Books:	
1.	Florida, R., Rodríguez-Pose, A., & Storper, M. (2020). Cities in a Post-COVID World. Papers in Evolutionary Economic Geography (PEEG) No. 2041. Utrecht University, Department of Human Geography and Spatial Planning, Group Economic Geography.
2.	Grandin, J., Haarstad, H., Kjærås, K., & Bouzarovski, S. (2018). The Politics of Rapid Urban Transformation. Current Opinion in Environmental Sustainability, 31, 16–22.
3.	Latham, A., McCormack, D., McNamara, K., McNeill, D. (2009). Key Concepts in Urban Geography. Sage, London.
4.	Montgomery, J. (2008). The New Wealth of Cities: City Dynamics and the Fifth Wave. Ashgate, Aldershot.
5.	Scott, A. J. (2012). A World in Emergence: Cities and Regions in the 21 st Edward Elgar, Cheltenham.
6.	Sieverts, T. (2003): Cities Without Cities: An Interpretation of the Zwischenstadt. Routledge, New York.
7.	Storper, M. (2013). Keys to the City: How Economics, Institutions, Social Interaction, and Politics Shape Development. Princeton University Press, Princeton.
8.	Thorns, D. C. (2002). The Transformation of Cities: Urban Theory and Urban Life. Palgrave Macmillan, Basingstoke.

Housing and Urban Inequality (PEC)

Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1	Students will be able to connect the basics of housing, the significance of housing in National Development Goals and current issues in housing.
CO2	Students will be able to assess housing demand with the help of various types of housing data from various sources, and housing development processes.
CO3	Students will be able to apply the knowledge of standards and design, factors determining residential densities; costs and development control regulations.
CO4	Students will be able to analyze housing policy and programs in India and schemes related to housing for various income groups.

Unit 1: Introduction and Housing Assessment Concepts and Definitions: Shelter as a basic requirement, Census of India definitions, Existing Housing Statistics; definitions; urban and rural housing statistics; Introduction to concepts of Housing Shortage, Housing Need, quantitative and qualitative aspects of housing; Housing Demand - Understanding current methods of demand assessment; Knowledge of data sources and their use and interpretation; census, NSSO and other data; Limitations of existing methods of assessments.	6 Hrs.
Unit 2: Housing Growth and Inequality Understanding of factors affecting residential location, theoretical knowledge of ecological, neoclassical, institutional approach to housing; Housing subsystems and their characteristics, Defining urban inequality; Growth of inequality; Global housing issues and inequality; Social inequality in the city: gender, race, and legal exclusions; Economic and Spatial inequality. Formal and non-formal housing; Process of Public and private sector housing development process; policy context, actors and their interrelationships; Inner city housing, Slums, Squatter housing, Unauthorized Housing.	6 Hrs.
Unit 3: Housing Standards and Design Factors determining residential densities; Densities, costs and development control regulations; Housing designs parameters and their relationship to costs; Housing design and climate; Measures to resolve inequality in the Housing sector, Housing for disaster prone areas. Communities; its characteristics and housing; socio-economic implication of slums, clearance/ improvement of slum; sites and services schemes, squatter upgrading, incremental approach.	6 Hrs.

Unit 4: Housing Policy Understanding and evaluation of Housing Policy and programs in India; five years plans, Central government policy; Policy framework for urban and rural housing; Comparative policy analysis; Housing for the low-income groups; Co-operative housing, objectives and principles; management and financing of housing projects; investment in housing in public and private sectors.	6 Hrs.
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Reference Books:	
1	Housing: Changing Needs and New Directions, V. Gandotra, M. Shukul, N. Jaju and N. Jaiswal, Authors press
2	Housing and Urbanization- A study of India, Cedric Pugh, Sage Publications, New Delhi
3	Housing Laws in India- Problems and Remedies, P. K. Sarkar, Eastern Law House Private Ltd.
4	National Housing Policy, GOI, New Delhi
5	Reading Material on Housing, K. Thomas Poulouse, ITPI, India
6	Housing Policies and Related Acts and Schemes of Government of India
7	Housing Finance in India 2004 ICFAI University Press, Hyderabad

Rural Planning and Development (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to explain the nature and constraints of rural societies.
CO2:	Students will be able to relate rural areas with development initiatives
CO3:	Students will be able to interpret importance and implications of public policies / programs / schemes on Rural Development
CO4:	Students will be able to apply planning models and tools for Rural Development

Unit 1: Introduction to Rural Development Meaning, Nature and Scope of Rural Development; Nature of Rural Society in India; Hierarchy of Settlements; Social, Economic and Ecological Constraints for Rural Development; Changing Patterns of Rural India in terms of Consumption, Land Utilization, Cropping, Holding Size, Living Standards and its Implications on Planning Process; etc.	6 Hrs.
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Unit2: Roots of Rural Development in India Indian Village from the Pre-British Period to 1947; Rural Reconstruction and Sarvodaya Programme before Independence; Impact of Voluntary Effort and Sarvodaya Movement on Rural Development; Land Reforms and Tenancy Reforms in India; Constitutional Direction, Directive Principles; beginning of Planning and Community Development; National Extension Services; etc.	6 Hrs.
Unit 3: Evolution of Decentralized Governance and Planning Process in India Need for Decentralized Planning, Balwant Rai Mehta Committee - Three Tier System of Rural Local Government; Need and Scope for People's Participation and Panchayati Raj; Ashok Mehta Committee - linkage between Panchayati Raj, Participation and Rural Development, 73 rd Constitution Amendment Act, including - XI schedule; Panchayati Raj Institutions; Gram Sabha - revitalized Panchayati Raj;	6 Hrs.
Unit 4: Rural Planning Procedure Planning Process at National, State and District Levels; Planning, Development, implementing and monitoring organizations and agencies; Urban and Rural Interface - Integrated Approach and Local Plans; Multi-Sector and Multi-Level Integrated Approach to Planning; Rural Planning Schemes / Village Development Plans- Their Procedures, Scope, Resource Mapping, Data Base, Funding Sources, Spatial Planning, etc.;	6 Hrs.
Unit 5: Programs / Policies / Schemes for Rural Development Five Year Plans and Rural Development, Development Initiatives / Programs / Policies for Rural Infrastructure Development (Housing, Water, Sanitation, Electrification, Roads, etc.), Agriculture, Social Development, Employment, etc.; Overview of Contemporary Government Schemes for Rural Development; Special Component Plan and Sub-Plan for the Weaker Section; Micro-eco Zones; etc.	6 Hrs.
Unit 6: Technology in Rural Development ICT in Rural Development, Rural Information System, Weather Forecasting, Disaster Minimization, Market Information, etc.; E- Panchayats, Energy Efficient Technologies and Alternative Technologies, Sustainable Rural Development, Case Studies; Basic Principles of Self-Help Techniques and Role of Voluntary Organizations in Community Development; Appropriate Technologies, Innovation and Entrepreneurship, etc.	6 Hrs.

Reference Books:	
1.	Archana S Mathur, Surajit Das, Subhalakshmi Sircar, 2006, Status of Agriculture in India
2.	Rural Development in India Past, Present, & Future, Dr Vasant Desai, Publisher Himalaya,
3.	Dynamics Of Rural Development, by Keshav Dev Gaur
4.	Mohan Rao, R M, 2004, Suicides among Farmers: A Study of Cotton Growers,

Reference Books:	
	Concept Publishing Company, New Delhi.
5.	Peoples' Participation in Rural Development in India, Durgadas Roy, Publisher Gangchil
6.	Mishra Srijit, 2006, Farmers' Suicides in Maharashtra, April, pp-1538-1545
7.	Sridar, V, 2006, Why Do Farmers Commit Suicide? The Case of Andhra Pradesh, EPW, April-22, pp-1560-1565
8.	Guidelines Published by Ministry of Rural development, Government of India

Sustainable Urban Water Management (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1	Students will learn principles of sustainable water management.
CO2	Students will analyze the challenges associated with urban water systems.
CO3	Students will be able to apply techniques for water conservation and wastewater management in urban areas
CO4	Students will be able to design & evaluate sustainable urban storm water management system, Practices, policies & Schemes

Unit 1: Introduction to Sustainable Urban Water Management Overview of urbanization & water management systems; Importance of sustainability in water management; Historical perspectives; Components of the urban water cycle; Water sources and usage in urban areas; Water balance; Urban water resources management model, Type of models- Physically based-conceptual based –Urban surface runoff model; Run off; SCS unit hydrograph method, etc.	6 Hrs.
Unit 2: Water Supply and Demand Urban water supply systems; Sustainable water sourcing; Technological advancements in water supply; Techniques for reducing water demand; Water conservation practices; Public awareness and education, etc.	6 Hrs.
Unit 3: Wastewater Management Introduction to urban drainage and sewerage network; Introduction to wastewater treatment; Sustainable wastewater treatment technologies; Reuse and recycling of wastewater; Urban storm water challenges; Sustainable drainage systems (SuDS); Green infrastructure for storm water management; Principles of	6 Hrs.

Integrated Water Resources Management; Benefits and challenges of IWRM; Case studies of IWRM implementation; Urban water pollution sources; Water quality monitoring and assessment; Policies and regulations for water quality management, etc.	
Unit 4: Climate Change and Water Management Impacts of climate change on urban water systems; Adaptation strategies for water management; Resilient water infrastructure design; Role of urban planning in water management; SDGS linked with Water Management; Water-sensitive urban design (WSUD); Integration of water management in urban planning processes, etc.	6 Hrs.
Unit 5: Water Supply & Urban Planning Urban Water Management landscape in India; Urban water supply: introduction, importance, and necessity for planned water supplies, Estimates of demand, design period, population data and population growth. Types of water supply system, design of water distribution system, ground and elevated service reservoir capacity estimation, Elements of DPR and case studies for water supply management, etc.	6 Hrs.
Unit 6: Water Management Policies and Schemes Legislative framework in India for Urban Water supply Management; Integrated urban water management; Water sensitive urban design; National water Demand Management-Shift from Supply to Demand; Cost benefit and challenges of UWDM; Water Audit – An accounting approach to water conservation; Water Balance in city ;Technologies for non-revenue water; Waste water reuse; Project Management tools for Enabling water management; GIS applications in Water Resource & Supply management; National Water mission; National Water supply & management schemes & Case Studies, etc.	6 Hrs.

Reference Books:	
1.	"Water Resources Sustainability" by Larry W. Mays
2.	"Sustainable Urban Water Management: Planning with Vision" by David Butler and Chris Makropoulos
3.	"Urban Water Security: Managing Risks" by Blanca Jimenez Cisneros and Joan B. Rose
4.	"Principles of Water Resources: History, Development, Management, and Policy" by Thomas V. Cech
5.	Larry W. Mays. "Water Resources Engineering", John Wiley & Sons, Inc NY, ISBN0-471-29783-6
6.	Allen P. Davis and Richard H. Mc Cuen" Storm water Management for Smart Growth", Springer, ISBN 10: 0-387-26048-X, ISBN-13: 9780387275932
7.	Warren Viessmann, Jr. Gary L. Lewis. "Introduction to Hydrology" Eastern

	Economy Edition, PHI learning Pvt. Ltd. New Delhi. ISBN978-81-203-3368-0
8.	Training module on Urban Water Management: Sustainable cities integrated Approach pilot in India
9.	CPHEEO ,2020 Advisory on GIS Mapping of water supply and sewerage Infrastructure, New Delhi, MoH&UA, GOI
10.	National Water Mission, GOI 2011, Comprehensive Mission document of National water Mission, Delhi: Ministry of Jal Shakti, GOI
11.	Hoyer, J., Dickhaut, W., Kronawitter L. & Weber, B.,2011. Water Sensitive Urban Design, Hamburg: Hafen City Universitat Hamburg.
12.	Sharma, S.K& Vairavamoorthy, K., 2009, Urban Water demand Management; prospect and challenges for the developing countries. Water and Environment Journal, Volume23, p.210-218
13.	CEPT, 2010. Preliminary water Audit: Estimation of water losses and strategy for Loss reduction, City of Kalol, Gujarat, Indi, Ahmedabad: CEPT University

Climate Adaptation (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will learn about the basics of Earth's climate system and the Science of Climate change.
CO2:	Students will be able to identify potential core contributions of sociological insights on climate change.
CO3:	Students will be able to analyze and interpret local and regional impacts and responses to climate change.
CO4:	Students will be able to develop data-driven inferences and mitigation methods.

Unit 1: Introduction to Climate Change Earth's Climate System, the Earth's Natural Greenhouse Effect and Dark Heating, Radiation Balance, Solar Radiation, and Global Energy Budget; External and Internal Forcing - Radiative Forcing; Greenhouse Gas Emissions, Climate Feedback, etc.	6 Hrs.
Unit 2: Global Climate – Trends and Impacts Account of Past Climate; Environmental Indicators and Instrumental Records; Human Footprints on Global Warming; Temperature Regime. Extreme Climate Events - Climates of the Past: Last Hundred, Thousands, and Millions of Years, Global Wind Systems, the Importance of Monsoons, El-Nino and Southern	6 Hrs.

Oscillations, General Circulation, Natural Versus Anthropogenic Causes of Climate Change, Enhanced Greenhouse Effect, Climate Forcing, Climate Forcing Agents., Global Warming Potentials, the Runaway Greenhouse Effect, CO ₂ Emissions, and the Earth's Carbon Reservoirs, etc.	
Unit 3: Climate Change and Society Public Opinion on Climate Change, Consumption Patterns and Global Climate Change, Strategies for Equitable Mitigation and Adaptation of Global Inequality and Climate Justice, Climate Change, and Denial Counter Movements, Economic and Government Responses, Social Movements and Location, etc.	6 Hrs.
Unit 4: Climate Change: Adaptation, Mitigation and Sustainability Adaptive Capacity, Adaptation to Climate Change, Carbon Sequestration, Mitigation Technologies, and Potential in 2030, Zero Carbon Future, Temperature Stabilization, Mitigation- Carbon Dioxide Removal (CDR), Reduction of Global Warming by Geoengineering, Carbon-Free Renewable Energy Technology- Alternative Energy, Efficient Use of Energy and its Conservation, Global Village, Climate Change Preparedness, Community-Based Adaptation, Ecosystem-Based Adaptation, etc.	6 Hrs.
Unit 5: Climate Change Policies and Measure Global Climate Politics and the Role of Civil Society; Conventions on climate change; International Initiatives - Climate Policy, IPCC and UNFCCC, Paris Agreement, National Level Action Plan, State Action Plan on Climate Change, etc.	6 Hrs.
Unit 6: Climate Data Handling Data Sourcing - for Relevant Data on Environment and Sustainability; basic data Processing to Create Relationships between different Data Sets on Environment and Development, Understand the Basic Concepts of Visualization and Learn to Visualize Data, Data Dashboard; Application of Remote Sensing and GIS in Climate Change Studies, Types and Theory of Models and Global Climate Models and Energy Balance Models., Emission Scenarios, Baseline Scenarios, etc.	6 Hrs.

Reference Books:	
1.	John T. Hardy, 2003 Climate Changes: Causes, Effects and Solutions, Wiley, 978-0470850190
2.	Anil Markandya, 2002, Climate Change and Sustainable Development: Prospects for Developing Countries, Routledge
3.	Climate Change – An Indian Perspective, Sushil Kumar Dash, Cambridge University Press India Pvt. Ltd, 2007
4.	Dunlap, R.E.; Brulle, R.J., 2015, Climate Change and Society: Sociological Perspectives, Oxford University Press, New York, NY, USA, 2015

Disaster Resilience Management (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand the concept of Disaster Management
CO2:	Students will be able to relate role of Stakeholders in Disaster Mitigation
CO3:	Students will be able to develop strategy for Disaster Mitigation
CO4:	Students will be able to plan for Disaster Preparedness

Unit 1: Concept of Disaster Management Disaster - Definitions, Concept and Perceptions; Different Types of Disasters. Recent Initiatives at National and State Level, Kyoto Framework of Disaster Mitigation and Management; Disaster Management Policy at National and State Levels, Disaster Management Act at National and State Levels, etc.	6 Hrs.
Unit 2: Disaster Management Mechanisms Disaster Mapping, Vulnerability Analysis, Vulnerability Atlas, Predictability, Forecasting and Warning, Relief Measures, Reconstruction and Rehabilitation, Disaster Preparedness Plan, Land Use Zoning for Disaster Management, Various Role Players in Disaster Management - NGOs / CBOs and Armed Forces; Community Based Disaster Preparedness (CBDP), etc.	6 Hrs.
Unit 3: Disaster Risk Mitigation for Natural Disasters Natural Disasters - Physical Phenomenon, Causes and Consequences Mitigation and Management Practices - Cyclones, Floods, Earthquakes, Landslides etc., Causes and Risk Mitigation Strategies at the Master Plan for Industrial, Chemical and Biological Disasters; Land Use Planning, Building Bye Laws, and Disaster Safe Construction Practices for Different Types of Disasters, etc.	6 Hrs.
Disaster Risk Mitigation for Man Made Disasters Trend in Urban Development and Challenges before Urban Administrators, Industrial, Chemical and Biological Disasters; Land Use Planning, Building Bye Laws and Disaster Safe Construction Practices for Different types of Disasters, Concepts and Overview of Technological Hazards at the City Level, Fire Safety at the City Level, Preparedness and Response at the City Level, etc. Principles and Methods of Community based Approaches for Urban Disaster Management, etc.	6 Hrs.
Unit 4: Disaster Preparedness Forecasting and Early Warning Systems for Various types of Disasters, Application	6

of Communication, and Information Technology in Disaster Management; Disaster Education and Awareness, Documentation and Case Studies on Natural Disasters, Urbanization, Land Requirements, Social and Affordability Issues of Land Use, Climate Change, and its Implications in Disaster Mitigation, etc.	Hrs.
Unit 5: Post Disaster Management and Cross Cutting Issues Post Disaster Management, Rehabilitation and Reconstruction of Disaster Affected Areas. Urban Disaster Mitigation; Natural Resource Management for Disaster Safe Habitation, Relationship between Disaster and Environment; Safe Hill Area Development Guidelines and Coastal Zone Regulations for Safe Habitation, Human Settlement Planning for Consequence Mitigation of Global Warming and Climate Change, etc.	6 Hrs.

Reference Books:	
1.	Introduction to International Disaster Management by Damon P Capolla. Butterworth Heinemann, 2007
2.	Introduction to Emergency Management by George D Haddow and Jane A Bullock. Elsevier Butterworth Heinemann, 2006
3.	Textbook of Disaster Management by Dr. Anniruddha Joshi. Lotus Publications, 2009
4.	Disaster Management Guidelines, NDMA. 2007-11
5.	Ministry of Home Affairs National Policy on Disaster Management (NPDM) 2006 MHA
6.	Community, Environment and Disaster Risk Management (2010) by Rajib Shaw by Emerald Group Publishing Limited
7.	Urban Risk Reduction an Asian Perspective (2009) by Rajib Shaw Hari Srinivas, Anshu Sharma by Emerald Group Publishing Limited
8.	Introduction to Disaster Management (2007) by P C Sinha by Anmol Publications, New Delhi

Heritage and Conservation of Special Areas (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand concept of Conservation
CO2:	Students will be able to relate importance of Heritage Areas
CO3:	Students will be able to develop a strategy for Heritage Conservation
CO4:	Students will be able to plan for Conservation of Special Areas

Unit 1: Introduction Overview and Introduction of the basic concepts of Conservation; Values, Attitudes and Principles for Judging the Conservation Importance of Sites, Areas and Related Typology; Scope and basic Technique of Urban Conservation; Heritage Classification, Urban Conservation Act & Regulations, Ancient Monument Act, Urban Renewal as a Part of Development Plan and Development Control Regulations; etc.	6 Hrs.
Unit 2: Urban Renewal Concepts Regeneration, Renewal, Revitalization, Rejuvenation, Concepts of Urban Decay, Urban Competitiveness, Social, Economic and Spatial Implications of Conservation and Urban Renewal Programs, Mobilization of Resources; Management of Urban Renewal Areas, Community Involvement, Traffic and Management Issues and Management, etc.	8 Hrs.
Unit 3: Tools of Urban Renewal Economic and Spatial Implications of Urban Renewal Programs; Mobilization of Resources; Urban Renewal through Incentive Zoning; Techniques like Redevelopment, Cluster Development, Land Sharing, Land Readjustment and Pooling, Incentive Zoning and Management, Concepts of Adaptive Reuse, Floating FSI And Transfer of Development Rights, etc.	6 Hrs.
Unit 4: Characteristics of Special Area Socio-Economic, Physiographic, Geographic and Political Features of Special Areas; Governance Framework of Special Areas; Land Management in Special Areas; Survey of Statutes Governing Special Areas, Unique Infrastructural Needs of Special Areas; Planning Standards for Special Areas, Survey of Programs and Projects for Special Areas; Best Practices of Special Area Planning, etc.	6 Hrs.
Unit 5: Classification of Special Areas Need for Special Area Planning; Defining Special Areas; Typology of Formal and Functional Special Areas: Boarder Area, Hill Area, Coastal Area, Desert Area, Extremist Affected Area, Special Economic Zones, Port City, Aerotropolis, Medi-City, Knowledge City, Defiance Area etc.; Contemporary Approaches for Special Area Planning, etc.	8 Hrs.
Unit 6: Legal and Administrative Aspects Slum Clearance and Improvement Schemes, Slum Redevelopment Authority Regulations, Government Schemes, and their Critical Evaluation; National and International Experience in Implementing Urban Renewal Programs; Legal and Administrative Aspects, National Schemes, Case Studies of Proposals for Urban Conservation of Sites / Areas in India and Abroad Change, etc.	8 Hrs.

Reference Books:	
1.	Luigi Fusco Girard and Peter Nijkamp (editors) Cultural Tourism and Sustainable Local Development (2009) Ashgate, Burlington
2.	The Ancient Monuments and Archaeological Sites and Remains Act 1958 and its amendments.
3.	Cohen, Naoum Urban Planning Conservation and Preservation (2001) McGraw-Hill Publication
4.	Model Heritage Regulations, Ministry of Urban Development, Government of India
5.	Nirmala Rao Khadpekar Urban Revitalization: Perspectives and Initiatives (2008) ICFAI University Press
6.	Richard Longstreth (editor) Cultural Landscapes: Balancing Nature and Heritage in Preservation Practice (2008) University of Minnesota Press
7.	Ismailb Serageldin, Ephim Shluger, Joan Martin-Brown (editors) Historic Cities and Sacred Sites: Cultural Roots for Urban Futures (2001) The World Bank Publication

Landscape and Resource Planning (PEC)								
Credit: 3				Evaluation Scheme (Weightages in %)				
Contact Hours per Week				Theory			Laboratory	
L	T	P	S	MSE	TA	ESE	ISE	ESE
3	0	0	1	30	20	50	--	--

Course Outcomes	
CO1:	Students will be able to understand the concept of Landscape
CO2:	Students will be able to relate Landscape and Urban Planning
CO3:	Students will be able to understand concept of Resource Planning
CO4:	Students will be able to appraise Ecosystem and its Relevance to Environment

Unit 1: Introduction To Landscape Landscape at Urban and Regional Level; Components and Characteristics of Open Space Patterns in Towns and Cities; Landscape Design in Relation to Land- Use, Circulation Networks and Activity; Concepts of Ecosystem Services, Landscape as an Outcome of Natural Processes; Principles and Techniques of Design with Landform, Landscapes in History; etc.	6 Hrs.
Unit 2: Elements of Landscape Planning The Rural Landscape: Characteristics, Components and Change Related to Agriculture, Forestry and Development; Western Experience of Landscape Planning; Landscape Assessment Techniques; the Concept of Landscape Quality; Landscape Planning as a Component of Regional Development Proposals; Introduction to Landscape Ecology, Cultural Landscapes, etc.	6 Hrs.

Unit 3: Landscape Aspects of Site Planning Principles of Understanding and Evaluating and Existing Landscape; Development as a response to Constraints and Opportunities Offered by the Site; the Landscape Concept and Open Space Structure; Role of Vegetation; Environmental Benefits, Functional Requirements, Aesthetic Considerations; Typical Situations and Criteria for Design with Plants and Selection of Species, Grading; etc.	6 Hrs.
Unit 4: Ecosystem and its Relevance to Environment Resources and Human Settlements Impact of Advanced Agricultural Methods, Urbanization, and Industrialization on Nature; Urban Ecosystem Approach Evolution and Significance; Soil, Water, Land, Vegetation and Solar, Biomass, Wind, Hydro Energy Resources; Settlement Planning and Energy Conservation; Development and Management, etc.	6 Hrs.
Unit 5: Environmental Policies Global and National Policies on Environment; Five Year Plans in Relation to Environmental Aspects; Legal Measure for Protection of Environment; Environmental Awareness and Education in India; Agencies involved in Environment Protection; Public Participation; Role of Planners in Shaping the Future Environment, etc.	6 Hrs.
Unit 6: Quantitative Ecology Introduction to Quantitative Ecology, Identification of Ecological Parameters for Planning at Different Levels; Site Planning, Settlement Planning and Regional Planning; Data Needs and Format for Data Collection; types of Analysis Required to Evolve Ecological Parameters; Planning for Environmentally Sensitive Areas; Environmental Land Use Classification; Environment Impact Studies, etc.	6 Hrs.

Reference Books:	
1.	The Landscape of Man: Shaping the Environment from Prehistory to the Present Day - Geoffrey Alan Jellicoe, Susan Jellicoe
2.	Landscape Planning: Environmental Applications - William M. Marsh
3.	Landscape Ecology Principles in Landscape Architecture and Land-Use Planning - Wenche E Dramstad, David M. Gillilan, James D. Olson
4.	Basic elements of landscape architectural design - Norman K. Booth
5	Environment and Ecology – R. K. Agrawal
6	The Planner's Guide to Natural Resource Conservation: The Science of Land Development - Adrian X. Esparza, Guy Mcpherson
7	Environmental Studies – Dr. J.P. Sharma
8	Ecology, Environment, and Resource Conservation - J S Singh, S P Singh, S R Gupta