M.PLANNING: SPECIALIZATION IN ENVIRONMENTAL PLANNING

(EVENING COURSE)

SCHEME OF INSTRUCTION, EXAMINATION AND SYLLABI

(With Effective from 2020-2021 Admitted Batch and onwards)

DEPARTMENT OF ARCHITECTURE
COLLEGE OF ENGINEERING (A)
ANDHRA UNIVERSITY, VISAKHAPATNAM

Department of Architecture
College of Engineering (A), Andhra University, Visakhapatnam

SCHEME OF SYLLABUS

M.PLANNING: SPECIALIZATION IN ENVIRONMENTAL PLANNING
(Evening Course)

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S. No	Code	Subject	Hrs. Per Week		EE/ EJ (Marks)	IA (Marks)	Max. Marks	Exam (Hrs.)	Credits		Credits
			T	P					T	P	
FIRST SEMESTER											
1	EPC1.1	**Planning History and Theory**	3	--	70	30	100	3	3	--	3
2	EPC1.2	**Socio-Economic basis for Planning**	3	--	70	30	100	3	3	--	3
3	EPC1.3	**Planning Techniques**	3	--	70	30	100	3	3	--	3
4	EPC1.4	**Infrastructure and Transport Planning**	3	--	70	30	100	3	3	--	3
5	EPC1.5	**Housing Environments and Planning**	3	--	70	30	100	3	3	--	3
6	EPC1.6	**Demography and Statistical Applications**	3	--	70	30	100	3	3	--	3
7	EPC1.7	**Planning Studio**	--	12	150	250	400	VV	--	6	6
		Film Appreciation			--	50					
		Literature Review			--	50					
		Area Appreciation			50	50					
		Site Planning			50	50					
		Statutory Development Plan			50	50					
		Sub-Total	**18**	**12**	**570**	**430**	**1000**		**18**	**6**	**24**
SECOND SEMESTER											
1	EPC2.1	**Theory of Environmental Planning**	3	--	70	30	100	3	3	--	3
2	EPC2.2	**Environmental Design**	3	--	70	30	100	3	3	--	3
3	EPC2.3	**Environmental Monitoring and Assessment**	3	--	70	30	100	3	3	--	3
4	EPC2.4	**Environmental Impact Assessment**	3	--	70	30	100	3	3	--	3
5	EPC2.5	**Environmental Monitoring and Assessment(Lab)**	--	3	--	100	100	--	--	3	3
6	EPC2.6	**Remote Sensing and GIS for Environmental Planning**	3	--	70	30	100	3	3	--	3
7	EPC2.7	**Environmental Planning Studio –I**									
		Environmental Planning Studio (Regional Issues)	--	12	150	250	400	VV	--	6	6
Mandatory Training of Six Weeks after Second Semester during Summer Vacation (Non-Audit)											
		Sub-Total	**18**	**12**	**500**	**500**	**1000**		**15**	**9**	**24**

EE/ EJ: End Exam / External Jury **IA: Internal Assessment** **VV: Viva-Voce**

THIRD SEMESTER											
S.No	Code	Subject	Hrs. Per Week		EE/ EJ (Marks)	IA (Marks)	Max. Marks	Exam (Hrs.)	Credits		Credits
			T	P					T	P	
1	EPC3.1	**Environmental Economics and Auditing**	3	--	70	30	100	3	3	--	3
2	EPC3.2	**Environmental Protection and Management**	3	--	70	30	100	3	3	--	3
3	EPC3.3	**Environmental Legislation, Evaluation and Practices**	3	--	70	30	100	3	3	--	3
4	EPC3.4	**Advanced EIA Techniques**	3	--	70	30	100	3	3	--	3
5	EPC3.5	**Planning Legislation**	3	--	70	30	100	3	3	--	3
6	EPC3.6	**RS & GIS Lab**	--	3	50	50	100	VV	--	3	3
7	EPC3.7	**Environmental Planning Studio-II**									
		Environmental Planning Studio (Sectoral Issues)	--	12	150	250	400	VV	--	6	6
7	EPT3.0	**Review of Six Weeks Mandatory Training during Summer Vacation after Second Semester**									
		Sub-Total	**15**	**15**	**550**	**450**	**1000**		**15**	**9**	**24**
FOURTH SEMESTER											
1	EPC4.1	**Formulation, Financing and Management of Developed Projects**	3	--	70	30	100	3	3	--	3
2	EPC4.2	**Seminar on Emerging Environmental Concepts**	3	--	70	30	100	3	3	--	3
3	EPC4.3	**Thesis**	--	22	300	400	700	VV	--	12	12
4	EPC4.4	**Research Methodology and IPR**	2	--	70	30	100	--	2	-	2
		Sub-Total	**8**	**22**	**510**	**490**	**1000**	**--**	**8**	**12**	**22**
		Grand Total	**59**	**63**	**2130**	**2130**	**4000**		**56**	**36**	**92**

EE/ EJ: End Exam / External Jury **IA: Internal Assessment** **VV: Viva-Voce**

Note:

1) Credits for Theory: One Credit for one hour of teaching per week.
2) Credits for Practical: One Credit for two hours of practical per week.
3) Six Weeks Training after Second Semester during the summer vacation is Mandatory for which the review will be held in third semester.
4)

FIRST SEMESTER

Name of the Subject: **PLANNING HISTORY AND THEORY**		
Subject Code: **EPC1.1**	**Semester: FIRST**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./weekend**	End Semester Exam: **70 Marks**	
Practical : -	Internal Assessment: **30 Marks**	

Aim: **To study History and Theory of Urban and Regional Planning.**

Objective:

1. **To study Evolution of Cities and History of Planning.**
2. **To study Theories of City Development.**

Contents		**Hrs**
Unit - 1	**Evolution of City Building** Relevance of the study of evolution of settlements; Hunter, gatherer, farmer and formation of organized society; Cosmological and other influences, origins and growth of cities, effects of cultural influence on physical form; Human settlements as an expression of civilizations; Basic elements of the city; Concepts of space, time, scale of cities.	9
Unit - 2	**Planning History** Town planning in ancient India; Medieval, renaissance, industrial and postindustrial cities; City as a living spatial entity; Concepts of landmark, axis, orientation; City form as a living space; City as a political statement: New Delhi, Chandigarh, Washington D.C. Brasilia etc; Contribution of individuals to city planning: Lewis Mumford, Patrick Geddes, Peter Hall, etc; Dynamics of the growing city, impact of industrialization and urbanization, metropolis and megalopolis.	15
Unit - 3	**Definitions and Objectives of Planning** Definitions of town and country planning; Orthodoxies of planning; Goal formulation, objective, scope, limitations; Sustainability and rationality in planning; Components of sustainable urban and regional development.	9
Unit - 4	**Theories of City Development and Planning Theories** Theories of city development including Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory and other latest theories; Land use and land value theory of William Alonso; Ebenezer Howard's Garden City Concept; and Green Belt Concept; City as an organism: a physical, social, economic and political entity; Emerging Concepts: global city, inclusive city, safe city, etc.; City of the future and future of the city; Shadow cities, divided cities; Models of planning: Advocacy and Pluralism in Planning; Systems approach to planning: rationalistic and incremental approaches, mixed scanning and middle range planning; Equity planning; Political Economy Model; Types of development plans, plan making process	15

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Hall, P.	Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century	2001	Blackwell, London.

2	Birch, E.L. and Silver, C.	One Hundred Years of City Planning's Enduring and Evolving Connections, Journal of the American Planning Association, Vol.75, Issue 2, pp.113-122.	2009	
3	Sandercock, L.	Making the Invisible Visible: A Multicultural Planning History	1998	University of California Press, London.
4	Brooks, M.P.	Four critical junctures in the history of the urban planning profession: An exercise in hindsight, Journal of the American Planning Association, Vol. 54, Issue 2, 241-248.	1988	
5	McLoughlin, J. B.	Urban and Regional Planning. A system approach,	1969	Faber and Faber, London.
6	Faludi, A.	A Reader in Planning Theory	1973	Pergamon Press, London.
7	Healey, P	Collaborative Planning: Shaping Places in Fragmented Societies	1997	Macmillan, London.
8	Peter, G.H. and Tewdwr-Jones, M.	Urban and Regional Planning,	2011	Routledge, London. Fifth Edition.

List of Exercises / Practical's:

1	Visit to Planning Organization / Department and submit Report on adoption of Concepts and Theories by them.

List of Assignments/Tests:

1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **SOCIO - ECONOMIC BASIS FOR PLANNING**		
Subject Code: **EPC1.2**	**Semester: FIRST**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: (3 + 0) = 3
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./weekend**	End Semester Exam: **70 Marks**	
Practical : **-**	Internal Assessment: **30 Marks**	

Aim: **To develop understanding with relevance to Socio-economic Issues in Urban and Regional Planning.**

Objective:

1. **To study Socio cultural Profile of Indian Society in the context of Urban and Rural Settlements.**
2. **To study the Economic Growth and Development of Urban and Rural Settlements**

Contents		**Hrs**
Unit - 1	**Nature and Scope of Sociology** Sociological concepts and methods, man and environment relationships; Socio- cultural profile of Indian society and urban transformation; Tradition and modernity in the context of urban and rural settlements; Issues related to caste, age, sex, gender, health safety, and marginalized groups; Displacement, resettlement and rehabilitation due to compulsory land acquisition.	9

Unit - 2	**Community and Settlements** Social problems of slums and squatters communities, urban and rural social transformation and their impact on social life, safety, security; Crimes in urban areas and their spatial planning implications, social structure and spatial planning; Role of socio-cultural aspects on growth patterns of city and neighborhood communities; Social planning and policy, and community participation; Marginalization and concepts of inclusive planning, and gender concerns in planning. Settlement Policy: National Commission on Urbanization, Rural Habitat Policy and experiences from developing countries regarding settlement structure, growth and spatial distribution.	15
Unit - 3	**Elements of Micro and Macro Economics** Concepts of demand, supply, elasticity and consumer markets; concept of revenue costs; Economies of scale, economic and social costs, production and factor market; Different market structures and price determination; market failures, cost-benefit analysis, public sector pricing; Determinants of national income, consumption, investment, inflation, unemployment, capital budgeting, risk and uncertainty, and long-term investment planning.	12
Unit - 4	**Development Economics and Lessons from Indian Experiences** Economic growth and development, quality of life; Human development index, poverty and income distribution, employment and livelihood; Economic principles in land use planning; Policies and strategies in economic planning, balanced versus unbalanced growth, public sector dominance; changing economic policies, implications on land.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	N. Jayapalan	Urban Sociology	2002	Atlantic Publishers & Distributors, New Delhi
2.	William G. Flanagan	Urban Sociology images and Structures	2010	Rowman & Littlefield Publishers Inc
3.	Mani Monto, L.S. Ganesh & K. Verghese	Sustainability and Human Settlements: Fundamental Issues, Modeling and Simulation	2005	SAGE Publications Pvt. Ltd, New Delhi
4.	Dr. D N Dwivedi	Principles of Economics	2006	Vikas Publishing House
5	Karl E. Case	Principles of Economics	2009	Pearson Education
6.	Jhingan, M	The Economics of Development and Planning	1998	Vrinda Publications, Delhi

List of Exercises / Practical's:

1.	Visits to a Village / Small town to ascertain Socio-economic Impact of Development and submit Report.

List of Assignments/Tests:

1	Test on Unit 1 or Unit 3.
2	Assignment on Unit 2 or Unit 4.

Name of the Subject: **PLANNING TECHNIQUES**		
Subject Code: **EPC1.3**	**Semester: FIRST**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./weekend**	End Semester Exam: **70 Marks**	
Practical : -	Internal Assessment: **30 Marks**	

Aim: **To study Mapping and Survey Techniques and Spatial Standards.**

Objective:

1. **To study the Database for Physical Surveys and Techniques of preparation of Base Maps.**
2. **To study the Methods of Population Forecast and Projections**

Contents		**Hrs**
Unit - 1	**Survey Techniques and Mapping** Data base for physical surveys including land use, building use, density, building age, etc., and socio-economic surveys; Survey techniques; Land use classification or coding and expected outputs; Techniques of preparing base maps including understanding the concepts of scales, components and detailing for various levels of plans like regional plan, city plan, zoning plan, and local area plan.	12
Unit - 2	**Analytical Methods** Classification of regions, delineation techniques of various types of regions, analysis of structure of nodes, hierarchy, nesting and rank size; Scalogram, sociogram, etc.; Planning balance sheet; Threshold analysis; Input output analysis, SWOT analysis;	15
Unit - 3	**Demographic Methods** Methods of population forecasts and projections; Lorenz Curve, Ginni Ratio, Theil's index, rations: urban – rural, urban concentration, metropolitan concentration; Location dimensions of population groups – social area and strategic choice approach – inter connected decision area analysis.	12
Unit - 4	**Planning Standards** Spatial standards, performance standards and benchmarks, and variable standards; UDPFI guidelines, zoning regulations and development control rules and regulations.	9

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Margaret Robert	A introduction to town planning techniques	1974	Hutchinson Educational, University of California
2	Lewis B. Keeble	Principles and practice of town planning	1967	Estates Gazette
3	Ian Braken	Urban Planning Methods	2007	Routledge,
4	Kruekeberg D. A. and Silvers A. A.	Urban Planning Analysis	1988	John Willey and Sons Inc.

Name of the Subject: **INFRASTRUCTURE AND TRANSPORT PLANNING**		
Subject Code: **EPC1.4**	**Semester: FIRST**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./weekend**	End Semester Exam: **70 Marks**	
Practical : **-**	Internal Assessment: **30 Marks**	

Aim: **To study the Elements of Infrastructure and Role of Transport in Urban and Regional Planning.**

Objective:

1. **To study the Elements of Physical Infrastructure and its Management.**
2. **To study the Basic Principles of Urban Transport Planning and Infrastructure.**

Contents		**Hrs**
Unit - 1	**Role of Infrastructure in Development** Elements of Infrastructure (physical, social, utilities and services); Basic definitions, concepts, significance and importance; Data required for provision and planning of urban networks and services; Resource analysis, provision of infrastructure, and land requirements; Principles of resource distribution in space; Types, hierarchical distribution of facilities, Access to facilities, provision and location criteria, Norms and standards, etc.	9
Unit - 2	**Planning and Management of Water, Sanitation and Storm Water** Water – sources of water, treatment and storage, transportation and distribution, quality, networks, distribution losses, water harvesting, recycling and reuse, norms and standards of provision, institutional arrangements, planning provisions and management issues; Sanitation – points of generation, collection, treatment, disposal, norms and standards, grey water disposal, DEWATS, institutional arrangements, planning provisions and management issues. Storm water – rainfall data interpretation, points of water stagnation, system of natural drains, surface topography and soil characteristics, ground water replenishment, storm water collection and disposal, norms and standards, institutional arrangements, planning provisions and management issues;	15
Unit - 3	**Planning and Management of Municipal Wastes, Power and Fire** Municipal and other wastes – generation, typology, quantity, collection, storage, transportation, treatment, disposal, recycling and reuse, wealth from waste, norms and standards, institutional arrangements, planning provisions and management issues. Power – Sources of power procurement, distribution networks, demand assessment, norms and standards, planning provisions and management issues. Fire – History of fire hazards, vulnerable locations, methods of firefighting, norms and standards, planning provisions and management issues.	9
Unit - 4	**Transport Infrastructure Planning, Management and Design** Role of transport, types of transport systems, evolution of transport modes, transport problems and mobility issues; Urban form and Transport patterns, land use – transport cycle, concept of accessibility; Hierarchy, capacity and geometric design elements of roads and intersections; Basic principles of Transport infrastructure design; Traffic and transportation surveys and studies, traffic and travel characteristics; Urban transport planning process – stages, study area, zoning, data base, concept of trip generation Transport, environment and safety issues; Principles and approaches of traffic management, transport system management.	15

Text / Reference Books:				
S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Mohinder Singh and L.R. Kadiyali	Crisis in road transport	1989	Konark Publishers Pvt. Ltd. , New Delhi
2	L. R. Kadiyali	Traffic engineering and transportation planning	2007	Khanna Publishers, New Delhi
3	Mukerjee S. and Chakraborty D.(Eds)	Environmental scenario in India	2012	Routledge, London
4	Sameer Kochhar, Deepak B. Phatak, H. Krishnamurthy, Gursharan Dhanjal, (eds)	Infrastructure and Governance	2008	Academic Foundation, New Delhi
List of Exercises / Practicals:				
1	Visit to a Local Body / Development Authority and submit report relevant with Infrastructure and Transport Planning.			
List of Assignments/Tests:				
1	Test on Unit 1 or Unit 2.			
2	Assignment on Unit 3 or Unit 4.			

Name of the Subject: **HOUSING ENVIRONMENTS AND PLANNING**			
Subject Code: **EPC1.5**	**Semester: FIRST**		
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**	
Teaching Scheme	**Examination Scheme**		
Lecture : **3 hrs./weekend**	End Semester Exam: **70 Marks**		
Practical : -	Internal Assessment: **30 Marks**		
Aim: **To provide an Exposure to the Basic Housing and Planning Concepts and Issues**			
Objective:			
1.	**To introduce the Basic Definitions, Concepts and Socio economic Dimensions related to Housing**		
2.	**To provide a basic understanding of Housing at the Neighborhood and City level and to appreciate the Housing Sector as an Integral Sector of Overall Town Planning System.**		
Contents			Hrs
Unit - 1	**Concepts and Definitions** Shelter as a basic requirement, determinants of housing form, Census of India definitions, Introduction to policies, housing need, demand and supply, dilapidation, structural conditions, materials of constructions, housing age, occupancy rate, crowding, housing shortage, income and affordability, poverty and slums, houseless population. Various housing typologies viz. traditional houses, plotted development, group housing, multi-storied housing, villas, chawls, etc.		12
Unit - 2	**Social and Economic Dimensions** Housing as social security, role of housing in development of family and community wellbeing, status and prestige related to housing, safety, crime and insecurity, deprivation and social vulnerability, ghettoism, gender issues, housing for the elderly. Contribution of housing to micro and macro economy, contribution to national wealth and GDP, housing taxation, national budgets, fiscal concessions, forward and backward linkages.		12

Unit - 3	**Housing and the City** Understanding housing as an important land use component of city plan / master plan, considerations for carrying out city level housing studies, projections, land use provisions; Suitability of land for housing, housing stress identification, projecting housing requirements, calculating housing shortages, housing allocation.	12
Unit - 4	**Housing Environments** Slums and squatters, night shelters, public health issues related to housing, various theories of housing, concept of green housing, green rating of housing projects; basic services for housing neighborhoods. Approaches to neighborhood living in traditional and contemporary societies, elements of neighborhood structure, Planning and design criteria for modern neighborhoods, norms and criteria for area distribution, housing and area planning standards, net residential density and gross residential density, development controls and building byelaws, UDPFI guidelines, NBC 2005 provisions and Case studies of neighbourhood planning.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Dwyer, D.J.	People and Housing in Third World Cities	1981	Orient Longman
2.	Beyer Glen H,	Housing : a factual analysis	1958	The Macmillan Co. NY
3.	Abrams, Charles	Man's Struggle for Shelter in an Urbanizing World	1964	MIT, Harvard
4.	Payne, Geofrey	Urban Housing in the Third World	1977	Routledge and Keegan Paul, USA
5.	Al Nichols, Jason Laros	Inside the Civano Project (Green Source Books): A Case Study of Large-Scale Sustainable Neighborhood Development (Mcgraw-Hill's Green source Series)	2009	McGraw-Hill Professional
6.	Douglas Farr	Sustainable Urbanism: Urban Design With Nature	2007	John Wiley & Sons
7.	Aromar Revi	Shelter in India - Sustainable Development Series	1990	StosiusInc / Advent Books Division
8.	International Institute for Energy Conservation	Eco housing Assessment criteria Version II	2009	USAID

List of Exercises / Practical:

1	Visit to Regional Office of HUDCO or State Housing Board and submit report.

List of Assignments/Tests:

1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **DEMOGRAPHY AND STATISTICAL APPLICATIONS**		
Subject Code: **EPC1.6**	**Semester: FIRST**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./weekend**	End Semester Exam: **70 Marks**	
Practical : **-**	Internal Assessment: **30 Marks**	

Aim: **To study two parts of Demography and Statistics, dealing with each independently and as well as connecting the applications of statistics to demography.**

Objective:

1. **The objective of the course on Demography is to provide the students with an understanding of basic concepts on demography**
2. **The objective of the course will be to introduce the most useful and commonly employed statistical tools and discuss the conditions under which use of those tools is appropriate.**

Contents		Hrs
Unit – 1	**Demography** Distribution and Density of Population – Measures of Population Distribution and Concentration; Factors Affecting Population Distribution and Density; World Population Distribution; Density Distribution in India. Population Change – Fertility and Its Measures; Mortality and Its Measures; Mobility; Factors Affecting Population Change; Determinants of Fertility and Mortality; Demographic Transition Theory; Some Population Theories (Overview only). Migration – Types of Migration; Determinants of Migration; Migration Models. Population Composition – Age and Sex Composition and Its Determinants; Age Pyramids; Working Force and Its Determinants; Composition of Work Force and Occupational Composition. Population Projections – Assumptions, Methods, Techniques.	12
Unit - 2	**Statistical Applications** Measures of Central Tendency and Dispersion – Arithmetic Mean; Weighted Mean; Geometric and Harmonic Mean; Median and Mode; Variance and Standard Deviation. Time Series and Forecasting – Trend Analysis – Cyclical Variation, Seasonal Variation, Irregular Variation; Various Methods in Time Series Analysis – Moving Average, Ratio to Trend, Link Relative and Residual. Factor Analysis – Principal Component Analysis.	12
Unit - 3	Probability Distribution and Sampling Distribution – Use of Expected Value in Decision Making; Binomial, Poisson and Normal Distribution (only application); Determination of Sample Size and Types of Sampling; Sampling Distribution (concept only); Design of Experiments (concept only)	12
Unit - 4	Correlation and Regression – Two Variable versus Multiple Linear Regression; Simple and Multiple Correlation; Estimation of Parameters – The Method of Ordinary Least Squares; Hypothesis Testing, Goodness of Fit. Use of Excel Software for Analysing Data; Applications of Features of Excel for statistical analysis; Introduction to other Statistical Analysis Software.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher

1.	Sinha, V.C. and Acharia, E.	Elements of Demography	1984	Allied Pub., Delhi
2.	Peter R. Cox	Demography	5th , 2008	Cambridge University Press
3.	S.C. Srivastava et al	Studies in Demography	2004	Anmol Publishers
4	S.N. Agarwal	India's Population Problems		Tata McGraw Hill Co., Bombay
5	P.K. Choubey,	Population Policy in India,		Kanishka Publications, New Delh
6	Dixon, W.J. and Massey, F.J.	introduction to Statistical Analysis	1951	McGraw Hill, New York.
7	Richard I. Levin et all	Statistics for Management		Pearson
8	J.K. Sharma,	Quantitative Methods: Theory and Applications,		Macmillan
9	Robert Hammond et all,	Quantitative Techniques in Geography – An Introduction,		Oxford University Press

List of Exercises / Practical's:	
1	Techniques and strategies to collect population information from other sources including representative sample surveys and vital statistics reports ,
2	Practical work on *data* collection methods, *types* of *statistical* studies and designs, the types of theories that might be tested with the data.
List of Assignments/Tests:	
1	Test on Unit 1 and Unit 2.
2	Assignment on Unit 3 and Unit 4

Name of the Subject: **PLANNING STUDIO**		
Subject Code: **EPC1.7**	**Semester: FIRST**	
Duration: **192 Hours**	Maximum Marks: **400**	Credits: **(0 + 6) = 6**
Teaching Scheme	**Examination Scheme: Viva-Voce**	
Lecture : -- hrs/week	End Semester Exam: **150 Marks**	
Practical : **-12 hrs / week**	Internal Assessment: **250 Marks**	
Aim: **To provide Appreciation of Site Planning, Area Planning and City Development Plan**		
Objective:		
1.	**To understand Development Issues.**	
2.	**To appreciate Contextual location of Area in relation to City.**	
Contents		
First Assignment: Film Appreciation (Individual Assignment) Films related to city development and socio-economic issues will be screened for students. The purpose of these films is to educate the students' understanding of various development issues and to absorb them in the planning practice. At the end of the film, a discourse around the film will also be held. After viewing the films, each student is expected to write about its main focus, city / region context, its applicability to Indian environment by answering the given questions in not more than half a page.		

Second Assignment: Literature Review (Individual Assignment)

Each student is expected to read the article given from a journal / book and write a summary of not more than a page (250 words only) highlighting the problem, approach, methodology, analysis, how the author arrived at the conclusion and its relevance to Indian context. There will be a negative marking for writing the same text as in the original (that is copying from the original text given to them).

Third Assignment: Area Appreciation (Individual Assignment)

The aim of the area appreciation exercise is to enable the students to understand and contextualize the location of the area in relation to the city, zone and area in which the particular place is situated. This is done in relation to the socio-economic, spatial and cultural characteristics of that city, zone, location, etc. The main purpose is to make the students appreciate the locational attributes of land parcels for future development in a city.

Due to the size of the area, this exercise is done in groups of students being assigned to a particular area.

The following planning issues at area level should be identified:

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

Fourth Assignment: Site Planning (Individual Assignment)

Site planning is a process whereby the optimum utilization of potential of site is considered recognizing the constraints the site has. It uses 3 dimensional space of the site and the associated locational advantages, human activities and the regulations that are assigned to a particular site.

The site is developed using a set of standards / norms in a given context which varies from location to location. A student is expected to understand the intricacies and interface between various variables such as soil conditions, topography, environmental dimensions, location, spatial standards applicable to the site, etc.

Fifth Assignment: City Development Plan (Group Assignment)

A City is a multi-dimensional, dynamic and a futuristic space. Understanding city involves appreciating this multi direction, and include them in the city making process. A job of physical planner does not merely understand the current conflict in development but to emerge

out of this and to come out with a vision for the city. To arrive at this vision, a planner needs to understand the dynamics of various components of the city and how and what level interventions can be made to achieve that vision.

A group of students are expected to study a city in terms its present problems and issues and project a futuristic vision in terms of scenario building.

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Lynch, Kevin	Site Planning		
2.	Smith, Carl, et. al.,	Residential Landscape Sustainability – A Checklist Tool	2008	Blackwell Pub., Oxford
3.	Ministry of Urban Development	Revised Tool Kit for Preparation of CDP	2009	Government of India, New Delhi

List of Exercises / Practical's:

1	Visit to Local Planning Agency and Field Visit for Data Collection and submit Report.

List of Assignments/Tests:

1	Marked Reviews on all Assignments
2	Internal and External Jury.

SECOND SEMESTER

Name of the Subject: **THEORY OF ENVIRONMENTAL PLANNING**		
Subject Code: **EP.C.2.1**	Semester: **SECOND**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs./week	End Semester Exam: **70 Marks**	
Practical : **--**	Internal Assessment: **30 Marks**	

Aim: **To study Theory of Environmental Planning.**

Objective:

1. **To study Concepts of Ecology and Ecosystem and undertake Resource Analysis for various Ecosystems.**
2. **To study Environmental Issues and Development Imperatives.**

Contents		Hrs
Unit – 1	**Concepts of Ecology, Ecosystem and Environmental Planning** History of Environmental Planning, Development of habitat patterns, settlement structure and form in response to environmental challenges; Concepts of Ecology and Ecosystem, Urban Ecosystem.	9
Unit – 2	**Resource Analysis and Conservation** Resource analysis for various ecosystems and development imperatives (land, geology, soil, climate, water, vegetation) characteristics, exploitation, causative factors for degradation, analytical techniques.	15
Unit – 3	**Environmental Zones** Environmental Zones (Hill, coastal, arid, characteristics, resources, settlements pattern, problems and potentials, regulating mechanisms for development.	12
Unit – 4	**Environmental Policies, Significant Conventions, Conferences** Environmental Policies and initiatives including policies, strategies, protocols, treaties and agreements.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Andrews, Goudie	The Human Impact on the Natural Environment – Past, Present and Future	2006	Wiley Publishers
2.	James K. Lein	Integrated Environmental Planning	2002	Wiley Publishers
3.	V.H. Dale, Mary R.English	Tools to Aid Environmental Decision Making	Latest Edition	Swinger
4.	William Fox, EnslinVan Rooyen (eds.)	The Quest for Sustainable Development	2004	Juta & Co. Ltd., Cape Town.

List of Exercises / Practical's:

1	Visit to Eco-sensitive Zone / Environmental Zone and submit report on environmental aspects dealt by them.

List of Assignments/Tests:

1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 3.

Name of the Subject: **ENVIRONMENTAL DESIGN**		
Subject Code: **EP.C.2.2**	Semester: **SECOND**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs/week	End Semester Exam: **70 Marks**	
Practical : **--**	Internal Assessment: **30 Marks**	

Aim: **To study Evolution of Environmental Design, Theory and Practice.**

Objective:

1. **To understand Approach to Environmental Design as applicable to Build Environment and Landscape Development.**
2. **To study Urban Climatology and Effects of Climate Change on City Planning.**

Contents		Hrs
Unit – 1	**Evolution of Environmental Design, Theory and Practice** Design as a determinant of Environmental quality; evolution Of Environmental design, theories and practice of design.	12
Unit – 2	**Approach of Environmental Design as Applicable to Build Environment** Criteria of Urban Environmental design issues-pedestrian-vehicular conflict, City Centre Environment, Housing areas, dereliction, environmental upgradation programmes; built environment aesthetics of ensemble of buildings, techniques of study of building condition, conservation aspects of built-up areas. Environmental approaches to design and planning of rural settlements, use of alternate technology in design of human settlements.	12
Unit – 3	**Approach of Environmental Design as Applicable to Landscape Development** Landscape as an environmental asset, techniques of landscape assessment at different levels, use of landscape design for environmental improvement.	12
Unit – 4	**Urban Climatology, Acoustics and Climate Change** Urban climatology, effects of thermal pollution, factors causing heat sink effects, direct radiation, climatic effects on Urban areas, control techniques Urban acoustics:- source of noise, methods of control, design techniques. Climate Change and City Planning, application of Energy code, Clean Development Mechanism.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Fabio Giudice, Guido La Rosa, Fabio Giudice, Guido La Rosa, Antonino Risitano	Product Design for the Environment: A Life Cycle Approach	2006	Taylor and Francis Group
2	Amos Rapoport	Meaning of the Built Environment: A Non-Verbal Communication Approach	1990	Sage Publications, USA
3	Leonard J. Hopper	Landscape Architectural Graphic Standards	2007	John Wiley and Sons

4	Mat Santamouris	Environmental Design of Urban Buildings: An Integrated Approach	2006	Earthscan UK

List of Exercises / Practical's:	
1	Visit to Local Bodies / Development Authority and submit report on Environmental Design being practiced by them.
List of Assignments/Tests:	
1	Test on Unit 1 or Unit 3.
2	Assignment on Unit 2.

Name of the Subject: **ENVIRONMENTAL MONITORING AND ASSESSMENT**			
Subject Code: **EP.C.2.3**	Semester: **SECOND**		
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**	
Teaching Scheme	**Examination Scheme**		
Lecture : 3 hrs./week	End Semester Exam: **70 Marks**		
Practical : **--**	Internal Assessment: **30 Marks**		
Aim: **To study Environmental Monitoring and Assessment with reference to Air, Water, Noise and Land Pollution.**			
Objective:			
1.	**To study Sources and Causes of Pollution with reference to Air, Water, Noise and Land.**		
2.	**To study Minimum Standards of Water Disposal, Noise Level and Monitoring Techniques.**		

Contents		Hrs
Unit – 1	**Air Pollution** Air Pollution-sources, causes/pollutants and their effects, emission sources, vehicular emissions, techniques of monitoring of emissions, emission standards, and ambient air quality. Concepts of relevant meteorological parameters, and interpolation of data, wind system measurement, turbulence; mixing height, plume use, dispersion and dispersion models.	12
Unit – 2	**Water Pollution** Water Pollution – sources, water quality tests, minimum standards of disposal (for different uses), performance criteria.	12
Unit – 3	**Noise Pollution** Noise Pollution- sources, techniques of measurement, noise level standards, noise levels.	9
Unit – 4	**Land Pollution** Land Pollution -sources, soil erodibility tests, minimum standards of disposal (minimum standards for different uses), performance criteria; interpretation of analytical trends of various parameters of quality of environment as above.	15

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	S P Mahajan T V Ramachandra	Air Pollution Control	2008	Teri Press

2	Marquita K. Hill	Understanding Environmental Pollution	Second edition, 2004	Cambridge University Press
3	CPCB	Pollution Control Law Series **(PCLS)**		Government of India, MOEF
4	S. M. Shafi	Environmental pollution	2005	Atlantic publishers and distributors

List of Exercises / Practical's:	
1	Visit to Agencies dealing with Air, Water and Noise Pollution including CPCB or CPHEO and submit report.
List of Assignments/Tests:	
1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **ENVIRONMENTAL IMPACT ASSESSMENT**		
Subject Code: **EP.C.2.4**	Semester: **Second**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./week**	End Semester Exam: **70 Marks**	
Practical : **--**	Internal Assessment: **30 Marks**	
Aim: **To study Role, Definition, Scope and Methods of EIA.**		
Objective:		
1. **To study Assessment of Impacts on Resources.**		
2. **To Assess the Role of Public Participation in EIA.**		

Contents		Hrs
Unit – 1	**Role, Definition and Scope of EIA** Role of EIA in the Planning and decision making process. Definition and need, evolution and objectives, tasks and scope.	12
Unit – 2	**Methods of EIA** Methods of EIA; advantages and limitations.	12
Unit – 3	**Assessment of Impacts** Assessment of impacts on resources (Including air, water, flora and fauna); assessment of impacts on Land use. Assessment of social and health impacts.	12
Unit – 4	**Role of Public Participation in EIA** Public Participation in EIA; definition and concepts, objectives, techniques, advantages and limitation, PRA techniques.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Asian Development Bank	Environmental Impact Assessment for developing Countries in Asia Vol. I and II.	1997	ADB Publication
2.	L.W. Canter	Environmental Impact Assessment	1996	McGraw Hill, New York
3.	R.R. Barthwal	Environmental Impact Assessment	1998	New Age International Publishers
4.	R. Dale	Evaluating Development Programme and Project	2004	Sage Publication

5.	A.K. Srivastava	Environment Impact Assessment	2003	A.P.H.Publishing Corporation, New Delhi
6.	Modak, P. and Biswas, A.K.	Conducting Environmental Assessment in Developing Countries	1999	United Nations University
7.	Robinson, H., Kanilo, P., Anumba, C.J. and Patel, M.	Governance and Knowledgement for Public Private Partnership	2010	Wile – Blackwall, Oxford.

List of Exercises / Practical's:	
1	Visit to Local Environment and Forest Department of Central or State Government and submit report, on concept of EIA.
List of Assignments/Tests:	
1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **ENVIRONMENTAL MONITORING AND ASSESSMENT (LABORATORY)**			
Subject Code: **EP.C.2.5**		Semester: **SECOND**	
Duration: **48 Hours**		Maximum Marks: **100**	Credits: **(0 + 3) = 3**
Teaching Scheme		**Examination Scheme**	
Lecture : **-- hrs/week**		End Semester Exam: **--**	
Practical : **3 hrs / week**		Internal Assessment: **100 Marks**	
Aim: **To familiarize students with relevant Instruments / Equipment's and Procedures with Air, Water, Soil and Weather Quality Parameters.**			
Objective:			
1.	**To familiarize students with Monitoring of Air Quality and Noise Level Measurements.**		
2.	**To familiarize students with Soil Testing Kit and Electronic Weather Station.**		

Contents		Hrs
Unit – 1	**Air Quality Parameters** Familiarization with relevant instruments/equipment's and procedures (High Volume Sampler, Handy Sampler, Noise Meter, Spectrophotometer etc); TSPM, RSPM, SO_2, NO_X, Stack Monitoring, Noise Level Measurements etc.	12
Unit – 2	**Water Quality Parameters** Familiarization with relevant instruments/equipment's and procedures (Flame Photometer, Water Testing Kit, Digital pH meter, BOD Incubator, Dissolved Oxygen Meter) Alkalinity, Amonical Nitrogen, BOD, COD, DO, Coliform, Fluoride, Nitrate- Nitrogen, pH, SAR, etc.	12
Unit – 3	**Soil Quality Parameters** Familiarization with relevant instruments/equipment's and procedures (Soil Testing Kit) pH, EC, Soil Moisture, Phosphate, Potassium, Sodium, etc.	12
Unit – 4	**Weather Parameters** Familiarization with relevant instruments/equipment's and procedures (Electronic Weather Station). Temperature, Relative Humidity, Rainfall, Wind Direction and Speed, etc.	12

Note:

1. The students has to visit for the Local Pollution Control Board and visit various CAAQMS to understand the Instruments used for sampling and monitoring of air quality for various parameters and also visit Weather Monitoring stations to understand the Instruments used for Monitoring and Make a Report along with presentations.
2. The students should visit Physical labs such as water Quality testing and soil quality testing for various parameters to understand the instruments/equipment's used and procedures of testing and make a final report of the same along with presentation

Final Marks will be awarded to the each student based on the performance of Two reports submitted and presentations given

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	S. V. S. Rana	Energy, Ecology And Environment	2008	I K International Publishing House Pvt. Ltd
2.	Mukesh Kumar, Rajan Kumar Gupta & G.S.Paliwal	A Laboratory Manual For Environmental Chemistry	2009	I K International Publishing House Pvt. Ltd
3.	Central Pollution Control Board	Laboratory Analytical Techniques Series (LATS)		Government of India, Ministry of Environment and Forest

Name of the Subject: **REMOTE SENSING AND GIS FOR ENVIRONMENTAL PLANNING**		
Subject Code: **EP.C.2.6**	Semester: **SECOND**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: (3 + 0) = **3**
Teaching Scheme	**Examination Scheme**	
Lecture : **3 hrs./week**	End Semester Exam: **70 Marks**	
Practical: --	Internal Assessment: **30 Marks**	

Aim: To study the Fundamentals of Remote Sensing, Photogrammetry and GIS. Applications of Remote Sensing for Planning

Objective:

1. **To study principles of Remote Sensing for Urban and Regional Planning**
2. **To study the Introduction to Geographical Information Systems**

Contents		Hrs
Unit – 1	**Principles Of Remote Sensing** History of Remote sensing, Remote sensing in India, Electromagnetic Radiation and Electromagnetic Spectrum, Spectral signature, Reflectance characteristics of Earths materials. **Platforms And Sensors** Platforms, Remote sensing sensors, resolutions Across track and along the track scanning, Optical sensors, satellite missions: Landsat series, SPOT series, IRS satellite series.	12
Unit – 2	**Fundamentals Of Photogrammetry And Photo Interpretation** Types of photographs; Vertical photographs – principal point; scale; Stereoscopy; Vertical exaggeration – factors involved and determination; Overlap, side lap and flight planning, Aerial mosaics: comparison with maps; Elements of aerial photo interpretation – (a) landforms; (b) surface drainage patterns; (c) erosion features, (d) gray tones; (e) miscellaneous elements.	12

Unit – 3	**Introduction To Geographical Information Systems:** Introduction maps and spatial information. Computer assisted mapping and map analysis. Geographic Information Systems. The components of geographical Information System. Future directions and trends in GIS. Data structures for Thematic maps. Data structures for Geographic Information Systems. Points, lines and areas. Definition of a map Geographic data in the computer. File and data processing, data base structures, perceived structures and computer representation and geographical data.	12
Unit – 4	**Remote Sensing Applications** Applications in land use and land cover analyses 1. Land use classification principles and systems. 2. Mapping and monitoring of land use / land cover and regional Planning. 3. Urban land use, Urban sprawl and urban planning. 4. Resource mapping and integrated information for sustainable Development. 5. Fundamental concepts of GPS, Various segments, Observation principle and signal Structure. 6. Applications in planning, population estimation, identification of sources of pollution, etc.,	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Lueder, D.R., McGraw Hill Book Co.,	Aerial photographic interpretation,	1959	-
2.	Paul R. Wolf ,McGraw-Hill,	Elements of Photogrammetry,	2000	-
3.	Lillesand and Keifer, John Wiley and Sons,	Remote sensing and Image interpretation,	1987	-
4.	Longley Paul, A., et. al	Geographic Information Systems and Science	2001	John Wiley & Sons Ltd., New York.
5.	Bhatia, S.C.	Fundamentals of Remote Sensing	2008	Atlantic Publishers, Delhi

Name of the Subject: **ENVIRONMENTAL PLANNING STUDIO-I (REGIONAL ISSUES)**		
Subject Code: **EP.C.2.7**	Semester: **SECOND**	
Duration: **192 Hours**	Maximum Marks: **400**	Credits: (0 + 6) = **6**
Teaching Scheme	**Examination Scheme: Viva-Voce**	
Lecture : **--**	End Semester Exam: **150 Marks**	
Practical: **12 hrs. / week**	Internal Assessment: **250 Marks**	
Aim: The main aims are identifying the key issues of a selected region and develop an environment improvement plan and minimizing the adverse impacts on the environment and society at large.		
Objective:		
1.	**To develop an understanding of the environmental issues in any one of the geographical regions of India**	

2.	**To familiarize students with planning, management and best practices in evaluating suitable alternatives for the benefit of Environment and Society.**

This would involve application of various planning techniques, methods and other tools in arriving at an appropriate solution to protect environment of the selected region.

Contents

The studio exercises will aim at identifying the key issues of a selected region and develop an environment improvement plan with the following thrust:

- To establish limits of the study area.
- To identify environmental issues in study area.
- To develop an understanding of the socio-economic environment and the existing environmental quality.
- To identify threats and opportunities.
- To identify concerns of local people.
- To explore best practices for improving existing resources and identify environmentally sound technologies or policies to prevent and resolve environmental problems.
- To ensure proper rehabilitation of population affected by developmental activities and cooperation of local people.

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Giacomo Cao, Roberto	Current Environmental Issues and Challenges	2014	Springer Netherlands
2.	Prakash Chand Kandpal	Environmental Governance in India Issues & Challenges	2019	SAGE Publications
3.	Frances Harris	Global Environmental Issues	2005	Wiley
4.	Yoshiro Higano	Socioeconomic Environmental Policies and Evaluations in Regional Science	2016	Springer Singapore
5.	Ashok K. Rathoure	Zero Waste Management Practices for Environmental SustainabilitY	2019	CRC Press
6.	Herman Koren	Best Practices for Environmental Health Environmental Pollution, Protection, Quality and Sustainability	2017	Taylor & Francis

List of Exercises / Practical's:

Visit to Field Visit of study area for Data Collection and submit Report.

List of Assignments/Tests:

Marked Reviews on the bullet points showed in the contents

Internal and External Jury.

THIRD SEMESTER

Name of the Subject: **ENVIRONMENTAL ECONOMICS AND AUDITING**		
Subject Code: **EP.C.3.1**	Semester: **THIRD**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: (3 + 0) = 3
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs./week	End Semester Exam: **70 Marks**	
Practical : **--**	Internal Assessment: **30 Marks**	

Aim: **To study Economic Measures of Sustainable Development and Environmental Performance Evaluation.**

Objective:

1. **To study Monitoring Evaluation Methodologies and Measures of Sustainable Development.**
2. **To expose students to National and International Projects relating to Environmental Economics.**

Contents		Hrs
Unit - 1	**Monitory Evaluation Methodologies** Uses of monetary valuation – Cost Benefit Analysis, National Resource Accounting, Pricing, Non-use Value, Techniques of monetary evaluation / valuation methodologies.	12
Unit - 2	**Economic Measures of Sustainable Development** Economic approaches of measuring sustainable development; measuring wealth, modifying GNP, savings, technological Change, Social Capital, Property right, creating global markets.	12
Unit - 3	**Environmental Performance Evaluation** Environmental Certification, Performance evaluation, Environmental Auditing, Eco- labeling, ISO.	12
Unit - 4	**Case Studies** National and International projects relating to environmental economics.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Katar Singh, Anil Shishodia	Environmental Economics	2007	Sage India
2.	Gopal K Kadekodi	Environmental Economics in Practice	2004	Oxford University Press (India)
3.	Nick Hanley, Jason F Shogren and Ben White	Environmental Economics: In Theory and Practice	Second edition, 2006	Palgrave Macmillan
4.	Roger Perman,Yue Ma, Michaek Common, David Maddison , James Mcgilvray	Natural Resource and Environmental Economics	Fourth edition, 2011	ISBN13: 9780321417534 ISBN10: 0321417534
5.	R. Kerry Turner David W. Pearce, Ian Bateman	Environmental Economics: An Elementary Introduction	1993	The Johns Hopkins University Press

List of Exercises / Practical:

1	Visit to Local Bodies / Development Authority and submit report on actions / projects taken by them towards Sustainable Development.

List of Assignments/Tests:

1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **ENVIRONMENTAL PROTECTION AND MANAGEMENT**		
Subject Code: **EP.C.3.2**	Semester: **THIRD**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs/week	End Semester Exam: **70 Marks**	
Practical : --	Internal Assessment: **30 Marks**	
Aim: **To study Environment Protection and Management Techniques.**		
Objective:		
1.	**To study Air and Water Pollution Mitigation and Abetment Technologies.**	
2.	**To expose students to case studies related to Water Harvesting, Water Treatment and Recycling Technologies.**	

Contents		Hrs
Unit - 1	**Environmental Protection Techniques** Air pollution mitigation and abatement; water pollution mitigation and abatement Noise attenuation; EPA Guidelines; role of Government and Non-Government Organizations in Environmental Protection; best practices in Environmental Protection and Conservation; International Co-operation for Environmental Protection.	12
Unit - 2	**Environmental Management** Resource Management: Including management of land, water bodies and water channels, forests and wildlife, minerals. Management of Urban Areas; Management of sensitive areas – hills, coasts, arid, wetlands etc. (including participatory approaches); management of Watersheds.	12
Unit - 3	**Appropriate Technologies and Applications** Techniques and case studies related to water harvesting, water treatment, recycling, waste disposal, waste minimization, and their implications. Low cost and cleaner technologies. Models of Collaboration Environmental Planning.	12
Unit - 4	**Alternate Energy Technologies** Technologies related to alternate energy- Solar, biomass, biogas, hydro, wind and their usefulness in settlements.	12

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	UNEP	Environmental Guidelines for Settlement Planning and Management	Latest Edition	UNCHS, UNEP (Habitat), Kenya
2.	Peter P. Rodgers, Kazi F. Jalal and John A. Boyd	An Introduction to Sustainable Development	2008	Prentice Hall of India
3.	Frank B. Friedman	Practical Guide to Environmental Management	9th Edition	Environmental Law Institute, Washington.
4.		Publications of Central Pollution Control Board on Air, Water and Noise Pollution, Waste Management		www.cpcb.nic.in

5.		New and Renewable Energy Sources		www.mnre.nic.in
List of Exercises / Practical's:				
1	Visit to Public Health Engineering Department of Local Bodies / Development Authority / State Government and submit report.			
List of Assignments/Tests:				
1	Test on Unit 1 or Unit 2.			
2	Assignment on Unit 4.			

Name of the Subject: **ENVIRONMENTAL LEGISLATION, EVALUTION AND PRACTICES**		
Subject Code: **EP.C.3.3**	Semester: **THIRD**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs/week	End Semester Exam: 70 **Marks**	
Practical : **--**	Internal Assessment: 30 **Marks**	
Aim: **To impart knowledge of Legislations related to Environmental Planning, Monitoring, and Impact Assessment.**		
Objective:		
1. **To familiarize students about various Acts related with Environment Protection.**		
2. **To familiarize students about Ministry of Environment and Forest Guidelines, Notifications and Rules related with Environment Protection and Management.**		

Contents	Hrs
➢ EP Act 1986 ➢ Air (Prevention and Control of pollution) Act ➢ Water (Prevention and Control of pollution) Act ➢ Mines and Mineral Act ➢ Factories Act ➢ Pesticides Act ➢ Indian Forest Act ➢ Wildlife Act ➢ Ancient Monuments and Archaeological Sites and Remains Act ➢ Hazardous Waste Management and Handling Rules / Biomedical Rules / Solid Waste Management Rules ➢ Environment Tribunal Act ➢ Climate change Protocols and Conventions ➢ MOEF Guidelines and Notifications ➢ Appellate Authority Act ➢ Other related Notifications	48

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Shyam Divan, Armin Rosencranz	Environmental Law and Policy in India	Second edition, 2001	Oxford University Press (India)
2.	Jane Holder and Maria Lee	Environmental Protection, Law and Policy	Second edition, 2007	Cambridge University Press

3.	Gadgil M. and Guha R.	Ecology and Equity	1995	Oxford, New Delhi
4.	Upadhyay S. and	Book on Environmental Law-	2002	Lexis Nexis- Butterworths-
	Upadhyay V.	Forest Laws, Wildlife Laws and the Environment; Vols. I, II and III,		India, New Delhi.
5.	Choudhuri, S.K.	Environmental Legislation in India	Latest Edition	Oxford QIBH Pub. Co.
6.	Bedi, R.S. and Bedi, A.S.	Encyclopedia for Environment and Pollution Laws	Latest Edition	Orient Law House
List of Exercises / Practical's:				
1	Visit to the Office of Senior Legal Consultant dealing with Environmental Legislation and submit report.			
List of Assignments/Tests:				
1	Appraisal of a selected Act.			
2	Case study based assignment on Selected Acts.			

Name of the Subject: **ADVANCED EIA TECHNIQUES**				
Subject Code: **EP.C.3.4**		Semester: **THIRD**		
Duration: **48 Hours**		Maximum Marks: **100**		Credits: **(3 + 0) = 3**
Teaching Scheme		**Examination Scheme**		
Lecture : 3 hrs./week		End Semester Exam: **70 Marks**		
Practical : **--**		Internal Assessment: **30 Marks**		
Aim: **To impart knowledge of Advanced EIA Techniques.**				
Objective:				
1.	**To study Risk / Vulnerability Assessment of Development Projects.**			
2.	**Expose students to case studies on Carrying Capacity, Environmental Thresholds and Ecological Footprints.**			
Contents				Hrs
Unit - 1	**Assessment of Development Projects** Highways, industries, construction and new townships.			12
Unit - 2	**Risk Assessment / Vulnerability Assessment** International and national methodologies; Case studies.			12
Unit - 3	**Strategic EA / Sustainability Appraisal** International and national methodologies; Case studies.			12
Unit - 4	**Carrying Capacity / Environmental Thresholds / Ecological Footprint** International and national methodologies; Case studies.			12
Text / Reference Books:				
S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Prasad Modak, Azit K. Biswas	Conducting Environmental Impact Assessment in Developing Countries	Latest Edition	United Nations Press University
2.	Ed.R.E. Hister, Lester Roy, M.Harrison	Risk Assessment and Management	Latest Edition	RSC Publishing, UK
3.	John Birkmann	Measuring Vulnerability to Natural Hazards	2006	TERI Press, New Delhi United Nations Univ.

4.	Simon Marsden	Strategic Environmental Assessment in International and European Law	2008	Earthsean, UK
5.	Dr.Mathis Wackernagel, William E. Ros	On Ecological Footprint Reducing Human Impact on Earth	Latest Edition	New Society Edition, Canada.Publishers

List of Exercises / Practical's:	
1	Visit to a large Project undertaken by Local Bodies / Development Authority and submit report on Carrying Capacity / Environmental Thresholds / Ecological Footprints.
List of Assignments/Tests:	
1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **PLANNING LEGISLATION**		
Subject Code: **EP.C.3.5**	Semester: **THIRD**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs/week	End Semester Exam: **70 Marks**	
Practical : **--**	Internal Assessment: **30 Marks**	
Aim: **To impart knowledge of various Legislations on Urban Planning and Development.**		
Objective:		
1.	**To educate students to basic concept of Law and Indian Constitution in general and 73rd and 74th Constitution Amendments is particular.**	
2.	**To expose students to Development Control Rules, Zoning Laws.**	

Contents		Hrs
Unit - 1	**Planning Legislation – General** Concept of Law: Source of law (i.e. custom. legislation and precedent), meaning of terms of law, legislation, ordinance, Bill, Act, Regulations and Bye-laws. Significance of law and its relationship to urban planning benefit of statutory provisions-eminent domain and police powers.	9
Unit - 2	**Indian Constitution and Planning Legislation** Indian Constitution: Concept and contents, provisions, regarding property rights, Legislative competence of staff and central Government to enact town planning legislation. Evolution of Planning legislation. An over view of legal tools connected with Urban Planning and Development, Town and Country Planning Act, Improvement Trusts Act, Urban Planning and Development Authorities Act - objectives, content, procedures for preparation and implementation of regional plans, Master Plans and Town Planning schemes.	15
Unit - 3	**Planning Legislation – Acts and Amendments** Concept of Arbitration; Betterment levy; development charges and public participation in Statutory planning process; Concepts of Structure Plan; local plan/and action plan under the English law. Land Acquisition Act 1884 - Basic concept, procedure for compulsory acquisition of property and determination of compensation.	12

Unit - 4	**Land and Other Legislation** Significance of Land Development Control – objectives, contents and legal tools, critical evolution of zoning, sub-division regulations, building regulations and bye- laws, Development Code, Zoning law and law relating to periphery control. 73rd and 74th Constitutional Amendment Act, 1992.	12

Text / Reference Books

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	ITPI	Planning Legislation and professional Practice		ITPI, New Delhi
2.	Bijlani, H.U. & Balachandran	Law and Urban Land	1978	IIPA, New Delhi
3.	GoI	UDPFI Guidelines Vol. 2A	1996	ITPI, New Delhi
4.	GoI	Indian Contract Act 1872; Indian Contract Act 1872; The Arbitration and Conciliation Act 1996. Constitution of India; Constitution (73rd & 74th Amendment) Acts 1992; Model Rent control Legislation; Slum (Improvement and Clearance) Act 1956; Land Acquisition Act 1894 and amendments thereof; NCR Planning Board Act, Environment (Protection) Act 1986; Model Town Planning and Regional Planning Development Law; and other acts		
5.	Government of various States	State Acts related town planning, slum clearance, municipalities, development authorities, Apartment Act, Rent Control Act, property laws, property tax, assessment, lease, and registration, etc		
6.	Edgar F N Ribeiro	Reassessment of Urban Planning and Development Regulations in Asian Cities	1999	United Nations Centre for Human Settlements
7.	Amiya Kumar Das,	Urban Planning in India	2007	Rawat Publishers and Distributors

List of Exercises / Practical's:

1	Visit to Legal Cell / Section of Local Body / Development Authority and submit report.

List of Assignments/Tests:

1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **RS & GIS LAB**		
Subject Code: **EP.C.3.6**	Semester: **THIRD**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(0 + 3) = 3**
Teaching Scheme	**Examination Scheme : Viva-Voce**	
Lecture : **--**	End Semester Exam: **50 Marks**	
Practical: **3 hrs. / week**	Internal Assessment: **50 Marks**	

Aim: The main aim is use of various powerful toolsets that are used for transforming and displaying real-world spatial data for mapping and environmental management and planning.		
Objective:		
1.	**To introduce students towards practical orientation of Remote Sensing and satellite images.**	
2.	**Introduction to Geo-informatics Systems practical for preparation of base maps, thematic maps, Editing and adding labels, cleaning and generating using recommended software's.**	
Contents		
Unit-1	**Remote Sensing Practical** 1. Identification of various land features from the satellite images in association with topo sheets and field visits. 2. Study of imagery indexes 3. Visual study of single band images 4. Visual study of multi-spectral images 5. Preparation of base maps from the topo sheets 6. Preparation of thematic maps from visual interpretation	24 Hrs.
Unit-2	**Geographic Information Systems Practical** 1. Classification of spatial data, layer and symbol concept using GIS software, GIS project overview. 2. Exercise on digitizing entities like point, line and polygon data 3. Preparation of base maps by using ArcGIS 4. Preparation of thematic maps from visual interpretation in ArcGIS 5. Editing and adding labels, cleaning and generating coverage topology	24 Hrs.

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Maghed Marghaney	Environmental Applications of Remote Sensing		Iva Simcic
2	D. Jude Hemanth	Artificial Intelligence Techniques for Satellite Image Analysis	2019	Springer International Publishing
3	Christian Harder, Clint Brown	The ArcGIS Book 10 Big Ideas about Applying the Science of where		Esri Press
4	Michael Kennedy	Introducing Geographic Information Systems with ArcGIS		Wiley

Name of the Subject: **ENVIRONMENTAL PLANNING STUDIO-II (SECTORAL ISSUES)**		
Subject Code: **EP.C.3.7**	Semester: **THIRD**	
Duration: **192 Hours**	Maximum Marks: **400**	Credits: **(0 + 6) = 6**
Teaching Scheme	**Examination Scheme**	
Lecture : **--**	End Semester Exam: **150 Marks**	
Practical: **12 hrs. / week**	Internal Assessment: **250 Marks**	
Aim: The main aim is identifying the key environmental issues of a selected study area and develop an EIA and Environmental Management Plan to address the concerns of environment.		

Objective:	
1.	**To develop an understanding of the environmental issues in the selected area of the study**
2.	**To familiarize students in preparation of EIA, Environmental Management Plan its methodology, report structure, its approval process etc.**

Contents

- Principles of Environmental Impact Assessment, its methodology, report structure, its approval process.
- Principles of Environmental Management Plan, its methodology, report structure, its approval process

The class will be divided into groups and projects will be assigned to them.

An illustrative list of projects can include –

- Road development
- Storm water drainage system
- Water Supply system
- Sewerage System
- Beach development
- Water bodies such as lakes, river, back water
- Industrial area development
- Housing
- Watershed management
- Mining
- Urban forestry

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	David P. Lawrence	Environmental Impact Assessment Practical Solutions to Recurrent Problems	2003	Wiley
2.	Y.Anjaneyulu, ValliManickam	Environmental Impact Assessment Methodologies	2011	Taylor & Francis
3.	Luz Stella Velásquez B.	Environmental Management and Local Action Plans in Manizales, Colombia	2001	IIED
4.	C.J. Barrow	Environmental management for sustainable development	2006	Routldge Publication,
5.	V H Dale	Applying Ecological Principles to Land Management	2001	Springer-Verlag GmbH
6.	James K.Lein,	Integrated environmental planning,	1998	International Publication
7	Andres Duany, Jeff Speck and Mike Lydon	The Smart Growth Manual	2009	McGraw-Hill

List of Exercises / Practical's:

Visit to Field Visit of study area for Data Collection and submit Report.

List of Assignments/Tests:

Marked Reviews on the bullet points showed in the contents

Internal and External Jury.

FOURTH SEMESTER

Name of the Subject: **FORMULATION, FINANCING AND MANAGEMENT OF DEVELOPMENT PROJECTS**		
Subject Code: **EP.C.4.1**	Semester: **FOURTH**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs/week	End Semester Exam: **70 Marks**	
Practical : --	Internal Assessment: **30 Marks**	

Aim: **To study Formulation, Financing and Management Techniques of Development Projects.**

Objective:

1. **To study Role and Methodology of Project Identification and Formulation.**
2. **To study Cost Benefit Analysis, Risk and Trend Analysis and Logical Framework Analysis.**

Contents		Hrs
Unit - 1	**Role and Methodology of Project Identification and Formulation** The role of project formulation and appraisal in the Planning process; Methodology for project identification and formulation: Preparation of Preliminary studies, Feasibility Reports and Detailed Project Reports. Appraisal of Project, Monitoring of Projects; Reports: Review of project appraisal techniques adopted by financing agencies.	12
Unit - 2	**Cost Benefit Analysis** Financial cost-benefit analysis: cash flow techniques, Net present value, internal rate of return. Benefit-cost ratio, etc., Exercises and case studies; Social cost- benefit analysis: Tradeoff between efficiency and equity goals in project appraisal, measurement of direct and indirect costs and benefits in different sectors of urban and rural development, Case studies.	15
Unit - 3	**Risk and Trend Analysis** Risk and uncertainty in the project environment; sensitivity and profitability analysis in the Indian context; Emerging trends in the decision making process with respect to project appraisal and resource allocation at various levels of government.	12
Unit - 4	**Logical Framework Analysis** Methodology and case studies.	9

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	K.Puttaswamaiah	Cost-Benefit Analysis: With Reference to Environment and Ecology	2002	Transaction Publishers ,New Jersey
2	Colin H. Kirkpatrick, John Weiss	Cost-benefit analysis and project appraisal in developing countries	1996	Edward Elgar Publishing Inc.
3	D. K Jain.	Project planning and appraisal in planned economy the Indian context	1981	Uppal Publishing,
4.	Srivastava, U.K.	Project planning, financing, implementation and evaluation	1981	IIM, Ahmedabad

5.	Chandra, Prasanna	Projects : Planning, analysis, selection, implementation and review	1995	Tata McGraw Hill

List of Exercises / Practical's:	
1	Visit to a large Development Project undertaken by Local Body / Development Authority and submit report on cost Benefit Analysis.
List of Assignments/Tests:	
1	Test on Unit 1 or Unit 2.
2	Assignment on Unit 4.

Name of the Subject: **SEMINAR ON EMERGING ENVIRONMENTAL CONCEPTS**		
Subject Code: **EP.C.4.2**	Semester: **Fourth (Environmental Planning)**	
Duration: **48 Hours**	Maximum Marks: **100**	Credits: **(3 + 0) = 3**
Teaching Scheme	**Examination Scheme**	
Lecture : 3 hrs/week	End Semester Exam: **70 Marks**	
Practical : **--**	Internal Assessment: **30 Marks**	
Aim: **To give exposure to students on Emerging Environmental Concepts.**		
Objective:		
1.	**To familiarize the students to Environmental Information Systems and Models.**	
2.	**To familiarize the students to Environmental Security and Environmental Disasters.**	

Contents	Hrs
➢ Environmental Information Systems and Models ➢ Sustainable Settlements ➢ Ecological Footprints ➢ Environmental Security ➢ Environmental Disaster ➢ Ecotourism ➢ Urban Ecology ➢ Energy Planning in Urban Settlements. ➢ Any others	48

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Jagbir Singh	Ecotourism	2010	I.K. International Publishing House Pvt. Ltd
2.	Matthias Richter, Ulrike Weiland	Applied Urban Ecology: A Global Framework	2012	Blackwell Publishing Ltd.
3.	Jane,,Bicknell	Adapting cities to climate change: understanding and addressing the development change	2009	Earth scan London,
4.	Jagbir Singh	Disaster Management: Future challenges and opportunities	2007	I.K. International Publishing House Pvt. Ltd
5.	John Diamond, Joyee Liddle, Alan Southern, Philip Osc	Urban Regeneration Management	2010	Routledge, London

List of Exercises / Practical's:	
1	Visit to Disaster Mitigation and Management Agency and submit report on Environment
	Disaster Mitigation and Management aspects.
List of Assignments/Tests:	
1	Assignment on Energy Planning in Urban Settlement.

Name of the Subject: **THESIS**		
Subject Code: **EP.C.4.3**	Semester: **FOURTH**	
Duration: **324 Hours**	Maximum Marks: **700**	Credits: (0 + 12) = **12**
Teaching Scheme	**Examination Scheme**	
Lecture : **-- hrs/week**	End Semester Exam: **Marks 300**	
Practical : **22 hrs / week**	Internal Assessment: **Marks 400**	

Aim: **To undertake independent study in the field of Environmental Planning.**

Objective:

1	**To develop a basic understanding of the area chosen for study (by carrying out a detailed literature review).**
2	**To undertake detailed Exploration of the topic (by way of Surveys and Studies).**
3	**To identify issues and concerns those emerge out of the study and suggest Recommendations.**

Contents

Thesis incorporating aspects of environmental analysis and spatial climate will be prepared. The students are required to carry out independent research and prepare a thesis on a topic on Environmental planning selected by them and approved by the faculty under the supervision of a research guide allocated by the department.

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1.	Brubaker,D.L. and Thomas, R.M.	Thesis and Dissertations: A Guide to Planning, Research and Writing.	-	-
2.	Rowena Murray	How to Write a Thesis	3rd	Open University Press
3.	F. Abdul Rahim	Thesis Writing	2005	New Age International (P) Limited Publishers, Delhi.
4.	Kastens,K. Pfirman, S., Stute, M., Abbott, D. and Scholz, C.	How to Write Your Thesis	-	Colombian University
5.	Bracken, I.	Urban Planning Methods, Research and Policy Analysis	2008	Routldge
6.	Wang, X., Von Hofpe, R.	Research Methods in Urban and Regional Planning	2007	Springer
7.	You Tube	Tools for Academic Research in Urban Design and Planning	2011	You Tube Video.

List of Exercises / Practical:	
1	Field visit to Collect Data on selected Topic of Research.
List of Assignments/Tests:	
1	Marked Reviews at different Stages of completion of Research Work.
2	Internal and External Jury

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Name of the Subject: **Research Methodology and IPR**		
Subject Code: **EP.C.4.4**	Semester: **FOURTH**	
Duration: **32 Hours**	Maximum Marks: **100**	Credits: 2
Teaching Scheme	**Examination Scheme**	
Lecture : **2 Hrs/week**	End Semester Exam: **70 Marks**	
Practical :	Internal Assessment: **30 Marks**	

Objective:

1	Understand research problem formulation.
2	Analyze research related information.
3	Understand that today's world is controlled by Computer, Information Technology, but tomorrow world will be ruled by ideas, concept, and creativity.
4	Understanding that when IPR would take such important place in growth of individuals & nation, it is needless to emphasis the need of information about Intellectual Property Right to be promoted among students in general & engineering in particular.

Contents		**Hrs.**
Unit -1	**Research problem and Scope for Solution** Meaning of research problem, Sources of research problem, Criteria Characteristics of a good research problem, Errors in selecting a research problem, Scope and objectives of research problem. Approaches of investigation of solutions for research problem, data collection, analysis, interpretation, Necessary instrumentations.	9
Unit -2	**Format** Effective literature studies approaches, analysis, Plagiarism, Research ethics. Effective technical writing, how to write report, Paper Developing a Research Proposal, Format of research proposal, a presentation and assessment by a review committee.	9
Unit -3	**Process and Development** Nature of Intellectual Property: Patents, Designs, Trade and Copyright. Process of Patenting and Development: technological research, innovation, patenting, development. International Scenario: International cooperation on Intellectual Property. Procedure for grants of patents, patenting under PCT.	9
Unit -4	**Patent Rights** Patent Rights: Scope of Patent Rights. Licensing and transfer of technology. Patent information and databases. Geographical Indications.	9
Unit -5	**New Developments in IPR** Infringement of IPRs, Enforcement Measures, Emerging issues – Case Studies.	7

Text / Reference Books:

S. No.	Name of Authors	Titles of the Book	Edition	Name of the Publisher
1	Stuart Melville and Wayne Goddard	Research methodology: an introduction for science & engineering students		Juta Education
2	Wayne Goddard and Stuart Melville	Research Methodology: An Introduction		Sage Publications
3	Ranjit Kumar	Research Methodology: A Step by Step Guide for beginners	3rd	Sage Publications

1.	V. Scople Vinod	Managing Intellectual Property	-	Prentice Hall of India pvt Ltd, 2012
2.	S. V. Satakar	Intellectual Property Rights and Copy Rights		Ess Ess Publications, New Delhi, 2002
3	Deborah E. Bouchoux	Intellectual Property: The Law of Trademarks		Patents and Trade Secrets", Cengage Learning, Third Edition, 2012.
4	Prabuddha Ganguli	Intellectual Property Rights: Unleashing the Knowledge Economy		McGraw Hill Education, 2011
5	Edward Elgar Publishing Ltd., 2013.	The Management of Intellectual Property		Edited by Derek Bosworth and Elizabeth Webster
List of Exercises / Practical:				
1	Field visit to Collect Data on selected Topic of Research.			
List of Assignments/Tests:				
1	Marked Reviews at different Stages of completion of Research Work.			
2	One article has to be published in any one of the UGC Approved journal on Fourth Semester thesis topic			