

Teaching and Examination Schemes with Syllabus

of

Master of Technology

in

URBAN PLANNING

(WITH EFFECT FROM JULY 2017)

**(APPROVED BY SENATE OF THE S.V.N.I.T. AT THIRTY
SEVENTH MEETING HELD ON SUNDAY, THE 20TH NOVEMBER
2016 VIDE RESOLUTION NO: 5 (C))**



Department of Civil Engineering

Sardar Vallabhbhai National Institute of Technology, Surat

VISION, MISSION AND PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

INSTITUTE:

Vision: To be one of the leading Technical Institutes disseminating globally acceptable education, effective industrial training and relevant research output.

Mission: To be a globally accepted centre of excellence in technical education catalyzing absorption, innovation, diffusion and transfer of high technologies resulting in enhanced quality for all the stake holders.

DEPARTMENT OF CIVIL ENGINEERING

VISION OF THE DEPARTMENT: “To be a global centre of excellence for creating competent professionals in Civil Engineering”.

MISSION OF THE DEPARTMENT:

- To provide excellent education producing technically competent, globally employable civil engineers who will be leaders in the chosen field
- To undertake research in conventional and advanced technologies fulfilling the needs and challenges of modern society

ABOUT THE SECTION

India is transitioning from a mostly rural to a quasi-urban country. This poses challenges for sustainable development and at the same time presents a great opportunity for leveraging the benefits of urbanization with robust systems in place. This is a crucial time to leverage technology, and ensure planned development that can bring in greater economic and social benefits across the country. Urban planning, which is the foundation for the integrated development of cities, citizens, and the environment, has to be given adequate attention. Keeping in view all the necessities, there is an urgent need for a multi-sectoral approach to spatial planning as sectoral schemes are executed by different government departments and often not linked with each other. This is certainly not possible without adequate technical knowhow and planning capacities at the local levels. This further necessitates a stronger urban planning ecosystem in the country. Looking to this, course was initiated as Masters in Town and Regional Planning in 1987.

The first program of Master in Town and Regional Planning started in the year 1987 was renamed as Master of Engineering (Civil) in Town and Regional in 1991, Master in Town and Regional Planning in 2002, Master of Technology in Civil Engineering (Town & Regional Planning) in 2004, M. Tech in Planning in 2005, M. Tech in Urban Planning in 2010.

The intent of this Program is to educate the students in high level knowledge acceptable at global level enabling them to face field problems of urban and regional planning.

M. Tech Urban Planning Course curriculum involves core subjects as Urban Planning Fundamentals, Traffic and Transportation Planning, Urban Governance and legislation, Urban Infrastructure Planning and Management, Housing, etc and Elective Subjects as Geospatial Techniques, Regional Planning, Real estate management, etc. Elective subjects are introduced to manage recent happenings and advancement in field of Urban Planning and also helpful in attaining POs.

After completing the 2 years course, graduates may start working as professional planners for Government or Private enterprises and setups.

Planners have diverse job opportunities available in front of them. The graduates have access to both Government as well as Private sector job opportunities. Government Departments related to Urban and Town planning, Government operated Housing schemes, Government Transportation Projects (Highways, Railways and Metros etc), Government Construction and rehabilitation projects, PWD Projects, Municipal Corporation and ULBs are well known Government job opportunities. Government agencies taking care of above mentioned and/or similar services are known to recruit planning professionals. Self-employment opportunities are also available in front of planning professionals. Starting a consultancy service is the first thing that comes to my mind, talking about self-employment.

Programme Educational Objectives

Graduates of Civil engineering will:

PEO 1: have successful career in civil engineering field or in their chosen field.

PEO 2: pursue life-long learning including higher education and research.

PEO 3: serve society with professional ethics and integrity

PROGRAMME OUTCOMES OF DEPARTMENT OF CIVIL ENGINEERING

The outcomes of UG Civil Engineering programme are:

PO1: Apply knowledge of mathematics, sciences and engineering fundamentals to solve complex problems of Civil Engineering.

PO2: Identify, formulate, research literature and analyse complex problems pertaining to Civil Engineering.

PO3: Design solutions for complex Civil Engineering problems to meet the needs of the society with respect to sustainable development considerations.

PO4: Design research experiments for acquisition generation, analysis and interpretation of data for Civil Engineering problems.

PO5: Apply advanced tools, techniques and latest softwares to solve complex Civil Engineering problems.

PO6: Shoulder responsibilities in context to societal, health, safety, legal & cultural issues consequent to Civil Engineering practices.

PO7: Understand impact of infrastructure solutions on societal and environmental aspects in context of sustainable development.

PO8: Apply ethical principles in Civil Engineering practices and professional responsibilities.

PO9: Work independently or in a team as a member/ leader in multidisciplinary tasks.

PO10: Communicate effectively and presentation with Civil Engineering professionals and society at large.

PO11: Demonstrate knowledge of management principles and engineering techniques for effective project management.

PO12: Recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change

Program Outcomes (PO)

Programme outcome (PO's) of m.tech. (Urban Planning):

Graduate will have

PO1: An ability to independently carry out research /investigation and development work to solve practical problems.

PO2: An ability to write and present a substantial technical report/document.

PO3: Students should be able to demonstrate a degree of mastery over the area as per the specialization of the program. The mastery should be at a level higher than the requirements in the appropriate bachelor program

Programme Educational Objectives (Peo's) Of **M.Tech. (Urban Planning):**

PEO1: To develop strong understanding of fundamentals in urban and regional planning with the necessary theoretical background, technical skills and knowledge of government policies to work professionally in the area of urban planning.

PEO2: To prepare students for successful career and technical knowhow with the values and social concern to meet the requirements at National and International levels.

PEO3: To provide exposure to the students in emerging technologies, software, adequate training and opportunities to work on research problems with effective skills.

PEO4: To train the students with effective communication skills and leadership to impart professional and ethical practices to function within multidisciplinary framework.

Programme Specific Outcome (PSO)

Graduate will

PSO-1: Demonstrate sound knowledge in analysis, design, studio investigations and planning aspects of town / urban / region to deal with various professional matters and provide community acceptance, environment-friendly and sustainable solutions.

PSO-2: Have a broad understanding of economic, environmental, societal, health and legislative factors involved in planning and design to function within multidisciplinary framework.

PSO-3: Be motivated for continuous self-learning in urban planning practice and/or pursue research in advanced areas of urban planning in order to offer services to the society, ethically and responsibly

Teaching Scheme

M.Tech. in Urban Planning

SEMESTER – I

Sr. No.	Course	Course Code	Teaching Scheme			Credits	Examination Scheme				
			Hours per Week				Theory Marks	Tutorial Marks	Practical		Total Marks
			L	TU	PR				(Internal Marks)	(External Marks)	
1	Urban Planning Fundamentals	CE–631	3	0	2	4	100	-	20	30	150
2	Housing	CE–633	2	0	2	3	100	-	20	30	150
3	Traffic and Transportation Planning	CE–635	3	1	0	4	100	25	-	-	125
4	Research Analytical Methods	CE–691	3	1	0	4	100	25	-	-	125
5	Elective – I		3	0	0	3	100	-	-	-	100
6	Planning Studio - I	CE–637	0	0	8	4	-	-	50	100	150
Total			14	2	12	22					
Total contact hours per week = 28			Total Credit = 22<24				Total Marks = 800				

SEMESTER – II

Sr. No.	Cours e	Course Code	Teaching Scheme			Credits	Examination Scheme				
			Hours per Week				Theory Marks	Tutorial Marks	Practical		Total Marks
			L	TU	PR				(Internal Marks)	(External Marks)	
1	Sustainable Urban Planning Practices	CE–632	3	1	0	4	100	25	-	-	125
2	Urban Infrastructure Planning & Management	CE–634	3	1	0	4	100	25	-	-	125
3	Project Formulation and Appraisal	CE–636	3	0	0	3	100	-	-	-	100
4	Urban Governance and Legislation	CE–638	3	1	0	4	100	25	-	-	125
5	Elective –II		3	0	0	3	100	-	-	-	100
6	Planning Studio - II	CE–642	0	0	8	4	-	-	50	100	150
Total			15	3	8	22					
Total contact hours per week = 26			Total Credit = 22<24				Total Marks = 725				

Teaching Scheme

M.Tech. in Urban Planning

SEMESTER – III

Sr. No.	Course	Course Code	Teaching Scheme			Credits	Examination Scheme				
			Hours per Week				Theory Marks	Tutorial Marks	Practical/Training		Total Marks
			L	TU	PR				(Internal Marks)	(External Marks)	
1	Design Portfolio	CE-823	0	0	12	6	-	-	80	120	200
2	Dissertation Preliminary	CE-825	0	0	8	4	-	-	50	100	150
3	(*)Summer Internship/Training	CE-829	0	0	2	1	-	-	-	50	50
4	Seminar	CE-827	0	0	2	1	-	-	-	50	50
Total			0	0	24	12					
Total contact hours per week = 24			Total Credit = 12				Total Marks = 450				

(*) Summer training will be undergone by students after the completion of 2nd semester in summer and evaluation of the report will be done in the next i.e. 3rd semester.

SEMESTER – IV

Sr. No.	Cour se	Course Code	Teaching Scheme			Credits	Examination Scheme				
			Hours per Week				Theory Marks	Tutoria l Marks	Practical/Training		Total Mark s
			L	T U	PR				(Internal Marks)	(External Marks)	
1	Dissertation	CE-822	0	0	24	12	-	-	150	300	450
T ot al			0	0	24	12					
Total contact hours per week = 24			Total Credit = 12				Total Marks = 450				

Summary

Total Contact hours /week	28 + 26 + 24 + 24 =102
Total Credit	22 + 22 + 12 + 12 = 68

List of Qualifying B.E. / B.Tech. Programmes for getting admission in the M.Tech. (Urban Planning):

B.E. / B. Tech. (Civil Engineering), Bachelor of Arch., Bachelor of Planning, Bachelor of Transportation Urban Planning

Teaching Scheme

M.Tech. in Urban Planning

ELECTIVE– I

Sr. No.	Course	Course Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				
			L	TU	PR		Theory Marks	Tutorial Marks	Practical		Total Marks
									(Internal Marks)	(External Marks)	
1	Urban Land Management	CE–641	3	0	0	3	100	-	-	-	100
2	Rural Planning and Development	CE–643	3	0	0	3	100	-	-	-	100
3	Geospatial Techniques	CE–645	3	0	0	3	100	-	-	-	100
4	Sustainable Building Planning	CE–647	3	0	0	3	100	-	-	-	100
5	Disaster Management	CE-649	3	0	0	3	100	-	-	-	100
6	Soft Computing Techniques	CE-871	3	0	0	3	100	-	-	-	100

ELECTIVE– II

Sr. No.	Course	Course Code	Teaching Scheme Hours per Week			Credits	Examination Scheme				
			L	TU	PR		Theory Marks	Tutorial Marks	Practical		Total Marks
									(Internal Marks)	(External Marks)	
1	Regional Planning	CE–646	3	0	0	3	100	-	-	-	100
2	Public Transportation Planning	CE–708	3	0	0	3	100	-	-	-	100
3	Planning Legislation	CE–648	3	0	0	3	100	-	-	-	100
4	Real Estate Management	CE–652	3	0	0	3	100	-	-	-	100
5	Urban Design and Landscape development	CE-654	3	0	0	3	100	-	-	-	100
6	Tourism Planning and Development	CE–656	3	0	0	3	100	-	-	-	100
7	Applied Statistical Analysis	CE–658	3	0	0	3	100	-	-	-	100

SEMESTER – I

CIVIL ENGINEERING DEPARTMENT M. TECH (URBAN PLANNING)
FIRST SEMESTER

CE – 631: URBAN PLANNING FUNDAMENTALS

L	T	P	C
3	0	2	4

Course Outcomes:

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

1. Understand town planning concepts and theories
2. Recognize the concepts for different area planning
3. Identify different growth patterns and models
4. Implement different guidelines, norms, land use planning policies, and survey techniques

EVOLUTION OF TOWN PLANNING:

Evolution in planning and physical form, Concept of urban human settlement, Differentiation between rural and urban settlement, concept of town, Evolved and Created Town Characteristics, Features of urban planning process, Role of urban planner, Genesis of urban form; Social, Geographical and Cultural impacts, Contemporary developments in planning, Impacts of Industrial revolution on town and regional planning, Contribution of eminent Planners: Lewis Mumford, Ebenezer Howard, Patrick Geddes, Sir Arthur Clarence Perry, Charles Correa, Le-Corbusier

URBANISATION:

Demography and Census Statistics- Significance of Census and Demographics- Planning policies framed based on Census-Use of Census Data in Urban Planning Rural and urban Migration, impacts of urbanisation, socio – economic impacts of growth of population, Social and Economic Environmental Administrator, Levels of Urbanisation, Indian scenario - Issues and Policies, Global scenario, Future trends of urbanization - Impact of Government Policies on Urbanization

GROWTH PATTERNS:

Elements of town structure, Town classification: Functional and geographical; City Centre, Walled city and Urban Fringe areas; classification based on socio-cultural characteristics, changes with time and growth, growth theories, Characteristics of the urban environment and its components, land use, Modern urban forms. Peri- Urban Areas- Urban Fringe- Issues

URBAN LAND USE PLANNING:

Objectives and Principles of Urban planning; Different Land use planning norms, Environmental aspects of land use planning, Role of URDPFI guidelines in Town planning, Land use Structures, demand and supply of land relationship, Government policies of urban development, Role of Professional bodies

PLANNING SURVEYS:

Objectives, types, significance, methodology, analysis, and applications; Researches through planning surveys; Use of planning surveys in Urban Modelling like Multiple Linear Regression Analysis; Planning parameters, aims, objectives, principles, methodology and systems approach, environmental parameters.

AREA PLANNING

Concept of Neighborhood Planning, Satellite Towns, Government Policies for small and medium towns, Urban and Rural Planning Rural-Urban Fringe

REFERENCES:

1. A.B. Gillion and Simon Eisner, "The Urban Pattern", CBS Publishers and Distributors, Delhi.
2. Rishma A., "Town Planning in Hot Cities", Mir Publishers, Moscow.
3. Ward S (2002), "Planning the 20th Century City" John Wiler & Sons.
4. R. Ramachandran, "Urbanisation and Urban Systems in India", Oxford Publications.
5. K. C. Shivrama Krishnan, "Revisioning Indian Cities", Sage Publications.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	2	1	1	0	2
2	2	2	1	1	0	2
3	3	2	2	2	0	2
4	1	3	2	3	2	3

CE – 633: HOUSING

L	T	P	C
2	0	2	3

Course Outcomes:

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

1. Understand the housing forms and their relationship with urban areas in line with DCR.
 2. Review the policies, norms, bylaws, and housing schemes in the Indian context.
 3. Discuss housing scenarios, housing finance, the housing market, and the role of stakeholders
 4. Design and plan residential areas considering socio-economic factors.
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PLANNING OF RESIDENTIAL AREAS:

Household and housing, housing requirement for different sections of society, building byelaws, development controls, housing projects layouts, Neighbourhood planning, design standards and their significance in housing process, socio-economic and aesthetic, environmental factors affecting layouts, various concepts of layout planning, row and multi storied housing, layout optimization techniques, appropriate DU design.

HOUSING FOR URBAN POOR:

Process of slum formation, causes and consequences, approaches to tackle the Challenge of slums. Housing Evaluation for urban Poor, Aerial and cluster standards, materials, social amenities and services, locational parameters, Policies. Housing schemes, relocation, rehabilitation, in-situ upgradation, etc.

HOUSING POLICIES & FINANCE:

Housing policies, Co-operative housing, Role of Central, State, Urban Local Bodies private and public sectors, financing institutes and their role, Housing Boards, HUDCO, NHB, HFIs, various international donor/financing agencies, micro finance institutions, rural housing finance, housing demand models.

HOUSING MARKETS

Concepts and definitions of housing market, area, the purpose and nature of housing market studies; factors affecting housing prices, housing market behaviour, estimation of housing need, housing demand ,The formal and informal housing markets and their impact on urban poor, public, Co-operative and private sector

CASE STUDIES

Case studies of housing projects at National and International Level, Housing for different climatic conditions, institute housing, Mass Housing, Affordable Housing, Transit and Temporary Shelters, Integrated Housing Schemes energy efficient design, methodology for formulation of housing projects.

REFERENCES:

1. Fredrick Gibberd:" Town Design", Architectural Press, London.
2. Charles Abrahms, "Housing in the Modern World", Faber and Faber, London.
3. D.J. Dwyer, "People & Housing in 3rd. World Cities", Longman, London.
4. D. Heggade and F. Cherunilam, "Housing in India", Himalya Publishing House, Bombay.
5. Dwivedi R. M. (2007), "Urban development and housing in India 1947-2007" New Century Publications, New Delhi.
6. William M Rohe and Lauren B Gates(1985):"Planning with Neighbourhoods", University of North Carolina Press
7. William Peterman (2000) : " Neighbourhood Planning and Community Based Development", Sage Publications India Pvt Ltd, GK I , New Delhi
8. James A LaGro Jr.(2008):" Site Analysis A Contextual Approach to Sustainable Land Planning and Site Design", John Wiley and Sons, Inc., Hoboken, New Jersey
9. P N Khanna (1999) : " Indian Practical Civil Engineers Handbook", Engineers Publishers
10. Watanabe Masakazu (ed.) (2000) : " New Directions in Asian Housing Finance", IFC, World Bank, Washington
11. Subbulakshmi, V. (ed.) (2004):" Housing Finance in India", ICFAI University Press, Hyderabad
12. Grigsby, William G (1963) : " Housing Markets and Public Policy", U of Pennsylvania Press
13. UNHS Programme (2003) : " The Challenge of Slums Global Report on Human Settlements 2003", UN-Habitat Earthscan Publishing, London
14. Dr. D Goswami (2012):" Housing and Urban Poverty Alleviation", SAAD Publications, Delhi
15. Kalpana Sharma (2000) : " Rediscovering Dharavi: Stories from Asia's Largest Slum", Penguin Books
16. Kishor C Samal (2008) : " Informal Sector: Concept, Dynamics, Linkages & Migration", Concept Publishing Company, New Delhi 59
17. Payne, Geoffrey K. (1988):" Urban Projects Manual", DPU, UK
18. Caminos, Harato, et. At (1988):" Urbanization Primer", John Wiley & Sons,

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	2	1	1	0	1
2	1	3	1	1	2	2
3	2	3	2	2	1	2
4	3	3	3	3	3	3

CE – 635: TRAFFIC AND TRANSPORTATION PLANNING

L	T	P	C
3	1	0	4

Course Outcomes:

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

1. Distinguish the concept of urban transport scenario, traffic characteristics, and transport development
2. Discuss Understand the concept of urban mobility, terminals and logistics
3. Practice urban transport planning and modelling with use of Softwares
4. Apply the knowledge of traffic planning, management techniques, and design elements

TRAFFIC CHARACTERISTICS:

Transport Development - Importance of Transport Development – International Transport Development Policies (ITDP), Definition, concepts, Scope and utility of transportation engineering Traffic growth, major traffic studies, traffic problems, urban road cross section elements and Inter-sections, IRC Standards. Pedestrian movements and problems.

TRAFFIC PLANNING AND MANAGEMENT:

Traffic planning parameters, geometrical requirements, design speed capacity, Traffic planning of identified areas - terminals, town centre, station area, CBD area.

Regulation & control, Inter section traffic control, other management techniques.

DESIGN ELEMENTS:

Intersection Design, signal design, parking space design.

TRANSPORT DEVELOPMENT:

Growth of rail and road transport, Investment in transport sector over time. Role of transportation in national and regional development, Transport infrastructure projects.

URBAN TRANSPORT PLANNING AND MODELING:

Fundamentals of transportation system planning, Principals of urban transport, scope and content of comprehensive transportation planning, basic steps of transport planning: Trip generation, distribution, modal split & route arrangement.

Use of TRANSCAD/CUBE/VISSIM in intercity transport modelling.

MASS TRANSPORTATION PLANNING:

Basic system of urban transportation, Para transit system, planning of city bus transportation, BRTS, metro transport system, Urban Mobility: Issues and Concepts Feeder Services for Public Transport- Integration of Informal and Mass Transportation

TERMINALS AND LOGISTICS:

Types and facilities, location, layout plan, function, activity planning guideline and land requirement for Bus Station, Railway Station & Airport – Logistics- Definitions- Location Aspects of Logistics Park.

REFERENCES:

1. Bruton, M.J., "Introduction to Transportation Planning," Hutchinson Publication, London.
2. Kadiali, L.R., "Traffic and Transportation Planning", Khanna Publishers, Delhi.
3. Papacoster, C.S.And Prevendons," Transportation Engineering and Planning" Prentice Hall of India.
4. Morlok, K.E., Introduction to Transportation Engineering, McGraw-Hill, New York, 1978.
5. Oppenheim, N., Applied Models in Urban and Regional Analysis, Prentice-Hall, NJ. 1980.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	1	1	0	2	1
2	2	1	1	0	1	0
3	3	0	3	2	2	3
4	3	3	3	3	1	3

CE – 691: RESEARCH ANALYTICAL METHODS

L	T	P	C
3	1	0	4

Course Objective:

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

1. Understand the importance of the research process in a systematic way
2. Interpret the validity of a particular phenomenon
3. Identify select the best possible alternative out of many options
4. Judge the appropriate type of sampling and to find the required number of samples for a given Population

SOCIAL RESEARCH FORMULATION:

Design of research, Types of research – descriptive vs analytical, applied vs fundamental, quantitative vs qualitative, conceptual vs empirical, scaling techniques, sampling techniques, design of questionnaire.

STATISTICS & PROBABILITY BASE:

Various probability distributions & their applications, parameter estimation, hypothesis testing, random variables, method of maximum likelihood, hypothesis testing to compare multiple population, statistical quality control.

LINEAR & MULTI-LINEAR REGRESSION AND CORRELATION ANALYSIS:

Estimation and analysis of simple regression models, correlation coefficients, analysis of correlation coefficients, hypothesis tests associated with regression and correlation coefficients, multiple regression models. Multi Criteria Decision Making

OPTIMIZATION TECHNIQUES:

Linear programming, Simplex method, transportation model, concepts of non-linear programming, decision theories-rules, decision under uncertainty.

REFERENCES:

1. Benjamin J. R., Cornell C. A., Probability Statistics and Decision for Civil Engineers, McGraw-Hill, 1970.
2. Freund J. E., Mathematical Statistics, PHI, New Delhi, 1990.

3. Hines W. W., Montgomery D. C., et. Al., Probability and Statistics in Engineering and Management Science, John Wiley and Sons, New York, 1990.
4. Rao S. S., Engineering Optimisation – Theory & Practice, New Age International Publishers, Revised Edition III, 2006.
5. Sharma J. K., Operation Research: Theory & Applications, MacMillan India Ltd., 2000.
6. Bhandarkar P. L., Wilkinson T. S., Methodology & Techniques of Social Research, Himalaya Publishing House, 1991.
7. Gujarati Damodar, Basic Econometrics, Sheldor Ross Publications

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	0	0	0	0	1
2	2	0	1	0	0	0
3	2	0	2	3	2	2
4	3	2	2	3	1	2

CE – 637: PLANNING STUDIO – I

L	T	P	C
0	0	8	4

Course Objectives:

1. Understand the fundamentals of plan preparation and approval.
 2. Prepare housing layout plan for all economic classes and neighborhood plans with Project estimation and implementation strategies
 3. Comprehend the concepts and practical aspects on urban mobility and road safety audit
 4. Develop transportation infrastructure plan in all aspects for passengers and logistics
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Two planning projects are required to be completed from the following areas.

- (A) Housing
- (B) Traffic/Transportation Planning Project.

A.HOUSING

The Project on Housing includes study of housing layouts for different economic classes, different building forms, preparing lay-out plans of neighborhood incorporating field studies and familiarization with site development standards, zoning and subdivision regulations. Assessment of existing project, and preparation of housing plans and Neighborhood plans.

The objective of this exercise is to evolve comprehensive housing development strategy for the selected city by studying city level and housing subsystem level aspects and estimating housing shortage; projecting housing need and demand and preparing alternative scenario's for housing development.

B.TRAFFIC/TRANSPORTATION PLANNING PROJECT.

The project on Traffic /Transportation planning covers study of Traffic & Transportation Planning of the City / Urban Area including hierarchy of roads, Planning parameters,problem identification and solutions at city/ zonal /local level, intersections designs, logistic parks, bus/ rail terminal studies, road safety audits etc. .

PLANNING STUDIO WORK:

- a.Undertake studies and surveys for Site selection, site analysis, technical feasibility studies, for formulating the project and design of selected area / project.
- b.Undertake studies to assess management, financial feasibility, Cost Benefit Analysis of Project, Social and Economic Impacts of Various Projects,
- c.Identify bottle-necks and prepare proposals suitable for implementation of Projects in consultation with between Planning Authority and Stake Holders

The studies need to be carried out mainly through secondary sources. A field visit to any town/city in India has to be made. The students are required to submit typed report (A4 Size paper spiral bound, 2 copies) along with studio exhibits (imperial size drawing sheet) for both the projects. The work shall be carried by the project team and to be presented to the panel of examiners including one external examiner.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	3	1	1	3	1
2	3	3	3	3	2	3
3	1	2	1	1	1	1
4	3	3	3	3	3	3

SEMESTER - II

SECOND SEMESTER

CE – 632: SUSTAINABLE URBAN PLANNING PRACTICES

L	T	P	C
3	1	0	4

Course Outcomes

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

1. Explore Land management models prevailing across the country
2. Predict population using different statistical methods and analyse population growth patterns
3. Review Town Planning acts, guidelines, and process of preparation of Development plan and Town planning scheme
4. Perceived knowledge of various Environmental Legislations and policies.

URBAN LAND MANAGEMENT:

Land Management Models, Social, Technical and Environmental Issues; Urban Planners Role in Land Management; URDPFI and TCPO guide lines for Town Development; Population forecasting methods; Analysis and prediction of important land use activities, Concepts of Development plan, Zonal Plans and Area Development Plan

TOWN DEVELOPMENT PLAN:

Needs, roles and objectives; Process of preparation; General Guidelines of Development Plan; Impact of Population density; study of existing development plans; various drawings of Development plan.

TOWN PLANNING SCHEMES:

Study of Planning Acts, Purpose of Town Planning Schemes; Methodology and legal aspects; Study of existing Town Planning Schemes.

SUSTAINABLE PLANNING TECHNIQUES

Concepts and components of ecology and ecosystem, Types of pollution: causes, effects and control; Role of planner for location of Treatment plants and Industries; Abatement measures of Noise, Air and Land pollution; Concept of Green building, Energy conservation and sustainability checklists; Concept of Eco-city; Decay causes and remedies; Urban renewal Missions; Role of Urban planners in Disaster Management. Concept of Smart City

ENVIRONMENTAL LEGISLATIONS

Role of Pollution Control Boards, Concept of Environmental Audit; Lifecycle Analysis; Carbon-credit; Role and functions of Ministry of Environment and Forests, Coastal Regulatory Plans & Coastal Zone Management Plans, Environment Impact Assessment, Social Impact Assessments.

Global Trends in Environment Policies, IPCC World Policy, Kyoto Protocol

REFERENCES:

- 1.MARGARET ROBERTS, "Town Planning Techniques", Hutchinson Educational Publication.
- 2.N.V. MODAK AND V.N. AMBDEKAR, "Town and Country Planning and Housing", Orient Longman Limited.
- 3.R.G. GUPTA, "Planning and Development of Towns", New Delhi.
- 4.K.S. RAMEGAUDA, "Urban and Regional Planning, Mysore University Publication.
- 5.Pratap Rao, "Urban Planning Theory and Practices", 2014, CBS Publishers.
6. Dr. Suresh K. Dhameja (2007) "Environmental Engineering and Management", S. K. Kataria & Sons, New Delhi.
7. G. N. Pandey (2005), "Environmental Management", Vikas Publishing House Pvt. Ltd., New Delhi.
- 8.Rehana Tariq (2008), "Sustainable Urbanization and urban Development", New Academic Publishers, New Delhi.
9. Rachel Cooper (2009), "Designing Sustainable Cities", Wiley- Blackwell Publisher, New delhi.
10. Joysen 2013, "Sustainable urban planning" , TERI (The energy and resource institute).

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	2	1	1	0	0
2	2	1	1	2	2	3
3	1	3	1	1	1	3
4	2	3	2	1	2	3

CE – 634: URBAN INFRASTRUCTURE PLANNING & MANAGEMENT

L	T	P	C
3	1	0	4

Course Outcomes:

1. Understand Urban Infrastructure fundamentals with practical application
2. Review different norms and guidelines of municipal infrastructure
3. Identify different shortcomings and challenges in the current practices
4. Explore modern techniques and technology in place of conventional methods

URBAN INFRASTRUCTURE PLANNING:

Data Required for provision & planning of urban Infrastructure , Types, significance, impact on urban form, norms and financial aspects, public private, spv and ppp models in infrastructure provisions, infrastructure policy,

NETWORKS AND SERVICES SYSTEMS:

Urban services overview, classification and significance, Concepts and theories for design and operation, components, interrelationship, requirements of appropriate technology, cost recovery, Gap analysis.

WATER SUPPLY NETWORK:

City & Household Network Scenario, Norms, National water policy, Water rights: excess and under utilization of water, role of community in water provision, water harvesting, privatization of water supply and its implications.

SEWERAGE NETWORK:

City & Household Network Scenario, Norms.

Sewerage drainage, refuse collection, storage, recycling and disposal, minimum basic needs, formulation of objectives, norms and standards both for space allocation and quality control, Storm water Network.

SANITATION AND SOLID WASTE MANAGEMENT:

Types, Generation, collection system, transfer station location, Segregation, transportation, disposal, site selection, Effect of population density, Impact of Urban land use, Bio-medical waste and disposal, Policies and programs in the provision of sanitation at various level, Low Cost Sanitation, city sanitation plan and state sanitation strategies, cost recovery in solid waste.

ELECTRICITY & COMMUNICATION NETWORK:

Location, transformer, station, street lighting requirements, telecommunication network requirement.

SOCIAL INFRASTRUCTURE:

Health and Education hierarchy, norms and location.

Energy distribution, fire protection: requirements, norms and standards, planning provision, milk distribution system, Recreation & Open Space Planning in Social Infrastructure

BOOKS RECOMMENDED:

1. FAIR, G.M., GAYER, J.C. AND OKUN, D.A., "Elements of water supply and Waste water Disposal", John Wiley & Sons, New York.
2. T.M. VINODKUMAR, "Networks and services", ITPI Reading Manuals.
3. TCPO AND MINISTRY OF WORKS AND HOUSING, "Norms and Standards for Urban Water Supply and Sewerage Services", New Delhi.
4. National Institute of Urban Affairs, "status of water supply, sanitation and solid waste management in urban area" 2005,
5. Tan Yigitcanlar, "sustainable urban and regional infrastructure development: technologies, application and management, 2010 IGI Global publishing company.
6. CPHEEO, "CPHEEO Manuals on water supply, sewerage, drainage and solid waste management.2005-08.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	1	1	0	0	0
2	1	3	1	1	1	2
3	2	3	2	1	2	1
4	3	3	3	3	3	3

CE – 636: PROJECT FORMULATION AND APPRAISAL

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Formulate project concept and its feasibility study
 2. Demonstrate different methods of appraisals.
 3. Control the ongoing construction projects by using different tools and methods.
-

PROJECT FORMULATION

Generation and screening of project ideas, project identification, preliminary analysis, market, technical, financial, economic and ecological-pre-feasibility report and its clearance, project estimates and techno-economic feasibility report, detailed project report, different project clearances required

PROJECT APPRAISAL

NPV, BCR, IRR, ARR, urgency-payback period, assessment of various methods, Indian practice of investment appraisal, international practice of appraisal, analysis of risk, different methods for selection of a project and risk analysis in practice, ownership structures; BOT, BOLT, BOOT models.

PROJECT CONTROL AND MONITORING

Parameters of project performance, time, cost and quality and their interrelationships, schedule and cost control tools and techniques, performance reporting, audit, corrective and preventive actions, fund flow control, management information system and application of management software.

REFERENCES

1. Prasanna Chandra, (1995) "Projects Preparation, Appraisals, Budgeting and Implementation", Tata Mc Graw Hill Publishing Co., Ltd., New Delhi.
2. Joy.P.K. (2007) "Total Project Management - The Indian Context (Chapters 3- 7) ", New Delhi, Macmillan India Ltd.
3. United Nations Industrial Development Organization (UNIDO. (1987) "Manual for the preparation of Industrial Feasibility Studies ", (IDBI Reproduction) Bombay.
4. Steven J. Peterson. (2005). "Construction Accounting and Financial Management", 2nd Edition, Pearson Education International, NJ.
5. Kumar Neeraj Jha (2012). "Construction Project Management", 2nd Edition, Pearson Education International, New Delhi.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	2	1	1	3	2
2	2	1	0	1	2	1
3	3	3	3	3	2	3

CE - 638: URBAN GOVERNANCE AND LEGISLATION

L	T	P	C
3	1	0	4

Course Outcome:

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

1. Classify Indian System of urban governance, organization structure and planning legislation
 2. Understand finance systems of ULB's and role of state and central government
 3. Identify ULB's role, functions for citizens including public administration.
 4. Formulate and design scenarios for ULB's in context of governance, finance and administration.
-

OVERVIEW OF URBAN GOVERNANCE

Definition, concepts, components, government and governance, hierarchy and structure, forms of governance, Indian Constitution, Planning Legislation – Acts and Amendments.

INDIAN SYSTEM OF URBAN GOVERNMENT:

Salient Features of Local Government System in India-historical overview; Commissions & Committees; Council of State Ministers; All India Council of Mayors; Centre-State-Local Relationships, 73th & 74th Constitution Amendment Act, E-governance and M-governance.

URBAN LOCAL GOVERNANCE AND PARTICIPATORY PROCESSES

Role of Municipal bodies, City/Urban development authority in urban development, its background, functions, powers, organizational structure, achievement and limitation, case studies, ULB interface with NGO's, other agencies. Stakeholders' participation, roles and responsibilities, access to government by various stakeholders.

URBAN FINANCE

Central and State; Taxation, Property Tax Administration – Valuation Assessment, Collection, Budget, Municipal Accounting, Municipal Audit – Concepts, Settlement of Audit Objectives. Urban fiscal reforms, municipal finance and urban inclusion, Sources of revenues and application of money; Equities; Loans; Debt financing; Municipal Bonds, land and non-land based sources;

BOOKS RECOMMENDED:

1. Mathur O.P. and Peterson George, 2006, State Finance Commissions and Urban Fiscal Decentralization in India , NIPFP

2. Ministry of Finance , 2011 , Report of 13th Finance Commission Government of India, New Delhi
3. Government of India,1992, 73rd and 74th Constitution Amendment, Acts , Government of India, New Delhi
4. U. B. Singh, 1997, Administrative System in India, IPH, New Delhi.
5. Rhodes, R.A.W., 1997, Understanding Governance: policy networks, governance, reflexivity and accountability. Open University Press, Maidenhead, GB, Philadelphia
6. Jayal N.G., Prakash A. and Sharma P.K., 2006, Local Governance in India: decentralization and beyond. Oxford University Press, New Delhi
7. Baud I.S.A. and Wit, J. de, 2008, New Forms of Urban Governance in India: shifts, models, networks and Contestations Sage, New Delhi.
8. Bijlani, H.U. & Balachandran, 1978, Law and Urban Land IIPA, New Delhi
9. Gol , UDPFI Guidelines,1996, Vol. 2A ITPI, New Delhi
10. Gol,Indian Contract Act ,1872; Indian Contract Act 1872; The Arbitration and Conciliation Act 1996. Constitution of India; 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 act
11. P. Barthwal, 2002, Understanding Local Government, Bharat Book, Lucknow.
12. Bhattacharya, 1979, Bureaucracy and Development Administration, Uppal, New Delhi.
13. Arvind K. Sharma, 2004, Bureaucracy and Decentralisation, Mittal, New Delhi.
14. I. M. Pandey, Financial Management, Vikas, New Delhi
15. M. Y. Khan and P. K. Jain, 1982, Financial Management, Tata McGraw Hill, New Delhi.
16. S. L. Goel, 2002, Advanced Public Administration in India, Deep & Deep, Delhi.
17. S. Bhatnagar, E-Government, Sage, New Delhi, 2004.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	2	1	0	1	0
2	1	2	1	0	0	1
3	2	3	2	2	0	2
4	3	3	3	3	3	3

CE – 642: PLANNING STUDIO – II

L T P C
0 0 8 4

Course Outcomes:

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

1. Adopt various land management and aggregation models.
2. Plan and design Town Planning Schemes as per relevant act
3. Prepare planning proposal for urban infrastructure with respect to Smart Cities / Future Cities
4. Identify the process of environmental impact assessment for the prepared proposal

Two planning projects are required to be completed from the following areas.

- A.Preparation of T.P. Scheme
- B.Preparation of Development Plan and Urban Infrastructures.
- C.Sustainable Environmental Planning.
- D.Smart Cities Infrastructure & Services

PLANNING STUDIO WORK:

- a. Undertake studies and surveys for Site selection, site analysis, technical feasibility studies, for formulating the project and design of selected area / project.
- b. Undertake studies to assess management, financial feasibility, Cost Benefit Analysis of Project, Social and Economic Impacts of Various Projects,
- c. Identify bottle-necks, and prepare proposals suitable for implementation of Projects in consultation with Planning Authority and Stake Holders

The studies need to be carried out mainly through secondary sources. A field visit to any town/city in India has to be made. The students are required to submit typed report (A-4, size papers, spiral bound, 2 copies) along with studio exhibits (imperial/ A1size drawing sheet) for both the projects. The work shall be carried by the project team and to be presented to the panel of examiners including one external examiner

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	1	2	1	0	2
2	3	2	2	2	3	2
3	3	3	3	3	3	3
4	1	1	1	2	2	1

SEMESTER – III

THIRD SEMESTER
CE – 823: DESIGN PORTFOLIO

L	T	P	C
0	0	12	6

Course Objectives:

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

1. Understand the process of evaluation and appraisal of Development Plans
2. Identify land Use Plan and the growth potential of the City
3. Develop capabilities to assess the urban policy framework of the city
4. Formulate financial mechanism for the urban infrastructure projects

Design portfolio in planning addresses evaluation and appraisal of Development Plan of one Major city/Mega City/Metropolitan Areas of India or abroad. Study shall cover assessment of objectives, carry out surveys, assess growth potentials, preparation of one land use plan of the development plan adopted, and is evaluated for the policy, planning design, implementation procedure and development controls regarding the land use. Do's and Dont's in professional Bodies

DESIGN PORTFOLIO WORK:

- a. The students shall carry out preliminary assessment of the City through literature survey, data available on websites and other secondary sources.
- b. Prepare detailed questionnaire for data collection during the field visits.
- c. Visit one City carry out surveys and data collection activities and thoroughly study the development plans, policies, implementation models, schemes etc.
- d. Hold discussions with Government Authorities / Stakeholders
- e. Carry out in depth appraisal of reports, & analysis of data collected and prepare appraisal report.

The studies need to be carried out mainly through primary data collection. A field visit to any Major or Mega town/city in India / Abroad has to be made. The students are required to submit typed report (A-4, size papers, spiral bound, 2 copies) along with studio exhibits (imperial/ A1size drawing sheet) for the Design Portfolio Work. The work shall be carried by the team and to be presented before a panel of examiners including one external examiner.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	1	1	0	0	1
2	2	2	2	1	0	1
3	2	3	3	3	1	2
4	3	3	3	3	3	3

CE – 825: DISSERTATION PRELIMINARIES

L	T	P	C
0	0	8	4

Course Outcomes:

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

1. Explore current or upcoming issues and research areas in the relevant field of Urban Planning
2. Identify the process & importance of Literature Survey in identifying research areas
3. Develop the methodology of research and prepare work schedule
4. Select the sample size, formulate questionnaires and choose models for analysis

Dissertation Preliminaries should clearly identify the goals/objectives and scope of the dissertation work taken up by the student. Details of data identification and field surveys should be clearly highlighted. The study approach and literature review should be discussed. A typed report shall be submitted at the end of the semester, which shall be assessed by the P. G. Section.

DISSERTATION PRELIMINARIES WORK:

- a. The student shall carry out literature survey preferably of last five years of good journals/ reports etc.
- b. The topic of Dissertation shall be selected by the student in consultation with Research Guide
- c. The student shall prepare the focus area of dissertation and finalise the study area / objective / scope of study and methodology
- d. The sample size of data collection and questionnaire shall be prepared & approved.
- e. The student shall present introduction, literature review and study area profile during the continuous assessment
- f. Students are expected to carry out pilot survey (10-25 Nos) preferably during the semester break.

The students are required to submit typed report (A-4, size papers, spiral bound, 2 copies) for the Dissertation Preliminaries Work. The work shall be presented before the panel of Research Guide & Internal Examiner.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	3	2	3	0	1
2	1	2	0	0	1	2
3	2	2	0	3	3	3
4	3	3	2	3	3	3

CE – 829: SUMMER INTERNSHIP / TRAINING

L	T	P	C
0	0	2	1

Course Outcomes:

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

1. Gain exposure of working in field with experts and team
2. Solve practical problems with urban planning approaches
3. Promote academic & industry networking
4. Develop technical as well as professional skills

Six to eight weeks summer training in Urban planning is to be undertaken at National/State/Local Government / Private Agencies after the Second Semester Examination prior to opening of Third Semester and project report on the same is to be prepared & submitted duly certified by the Project Organization.

SUMMER INTERNSHIP WORK:

- a. The student shall submit weekly diary to PG-In- Charge stating the work undertaken.
- b. Prepare summer internship report comprising of salient features of the assignment(s) handled, organizational set up and learning of issues & challenges.
- c. Student has to produce a copy of attendance register (during the internship) duly signed by the Competent authority.

The students are required to submit typed report (A-4, size papers, spiral bound, 2 copies) on the summer internship work.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	1	3	0	0	3
2	3	3	3	3	3	3
3	3	0	2	0	0	1
4	3	1	3	2	3	3

CE – 827: SEMINAR

L	T	P	C
0	0	2	1

Course Outcomes:

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

1. Understand the process of literature survey
2. Relate research areas in the field of Urban Planning.
3. Gather a database of inventory available in various topic
4. Generate the aptitude and ability in the field of independent research.

Each Student is required to present a seminar on the scheduled date and a typed copy of the same is to be submitted. Assessment is based on the presentation and contents of seminar.

SEMINAR WORK:

- a. The student shall finalise the topic of Seminar in consultation with Research Guide.
- b. The topic of seminar should be on an area different from the Dissertation topic, topics covered in Planning Studios of previous semesters or areas on which field visits have been conducted by their batch.
- c. Carry out in depth study of recent literature (published in last 5 years) in international & national journal / reports (at least 10 papers) on the research area.
- d. Appraise the literature with respect to advancement in research.

The students are required to submit typed report (A-4, size papers, spiral bound, 2 copies) on the summer internship work and present it before a panel on the scheduled date.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	0	0	0	0	1
2	2	1	2	1	2	1
3	2	2	2	1	2	1
4	3	3	3	2	3	2

SEMESTER – IV

FOURTH SEMESTER
CE – 822: DISSERTATION

L	T	P	C
0	0	24	12

Course Outcome:

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

1. Generate scope for original and independent study/research
2. Conceive ideas through the conduct of the research
3. Gain the ability & confidence to undertake field studies, data collection, analysis, and presentation
4. Prepare proposal on the research area

Each student is to carry out the dissertation work on the topic in which the Dissertation Preliminary has been done in the third semester.

The main objective of dissertation work is to provide scope for original and independent study/research, to develop a theme and to demonstrate ability of using analytical approach or investigate independently. The theme or topic of dissertation should be within the framework of P.G. Programme.

Thesis is prepared by each student under the supervision of the faculty advisor and to be submitted in six typed bound sets as per the specified time. The assessment of the dissertation will be carried out during the semester through continuous assessment on progress made and the final viva voce examination after the submission of thesis.

The first assessments will be by the P.G. Section and for the final assessment by the Institute.

DISSERTATION WORK:

- 1) The student shall undertake data collection and analysis and present
- 2) Finalise the model adopted for research work
- 3) Prepare planning proposals with different alternatives
- 4) During continuous assessment the student shall present the research work
- 5) Publish research papers on the research area as per Institute Guidelines

The students are required to submit typed Thesis (A-4, size papers, spiral bound, 3copies and 2 No's of Posters) in the initial stage and after Institute Assessment submit 6 Nos of bound copies of Thesis as per Institute guidelines.

Mapping of COs with POs

Course Objective	Program Specific Outcomes			Program outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	3	2	3	0	1
2	1	2	0	0	1	2
3	2	2	0	3	3	3
4	3	3	2	3	3	3

ELECTIVES – I

CE – 641: URBAN LAND MANAGEMENT

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Understand the significance of Urban Land Management in Developing Countries
 2. Postulate dynamics of Urban Land market.
 3. Identify legal aspects of development and their impacts on real estate development
 4. Apply land management techniques to manage urban growth
-

LAND MARKET DYNAMICS:

Concept, Scope, Principles, Land Use and Land Value, Parameters of Land dynamics market mechanism and land use pattern, Land Revenue Code, Land use restriction; compensation and acquisition, Urbanisation and land price speculations

LAND ECONOMICS:

Economics and Principles of land use, Development of land and real properties, Land Development charges and betterment levy PPP in urban land development & case studies

LAND POLICIES AND PRACTICES AND TECHNIQUES

Policy: Concept, Need, Objective, Significance, Factor influencing location decision, Analysis of location of specific land use like residential-industrial commercial and institutional in intra regional as well as inter regional level Case studies of various land use policies and practices at national, state, district and settlement level, Land acquisition and land pooling techniques, Process of virgin agricultural land converted into fiscal Resources

LEGAL ASPECTS:

Provisions of Land Acquisition Act, Urban Land Ceiling Act and Conservation Act, Town planning Acts, Origin, Objectives and applications. Building Bye-laws-Formations, Provisions and implications. Impacts on real estate developments.

REFERENCES:

1. Somik V. Lall (2009), "Urban Land Markets: Improving Land Management for Successful Urbanization", Springer.
2. John Randolph (2009), "Environmental Land use planning and Management", island Press.
3. Philip R. Berke (2009), "Urban Land use Planning", University of Illinois Press.

INDIAN BOOKS:

"Land Pooling Policy" by Government of India

E-BOOKS

1. Jaime Luque (2015), "Urban Land Economics", ISBN 978-3-319-15319-3 (print), Springer
2. Suminori Tokunaga, "Landownership and Residential Land use in Urban Economies- Existence and Uniqueness of the Equilibrium", ISBN 978-4-431-68412-1 (print)
3. Gregg P. Macey, Jonathon Z. Cannon, "Reclaiming the Land- Rethinking superfund institutions, methods and practices", ISBN 978-0-387-48856-1 (print)
4. Eric Koomen, Judith Borsboon-van Beurden, "Land-Use Modelling in Planning practices", ISBN 978-94-007-1821-0
5. Nathalie J. Chalifour, Patircia Kameri-Mbote (Aug 2009), "Land Use Law for Sustainable Development", Cambridge University Press

JOURNALS

1. Marin V. Geshkov, Joseph S. DeSalvo (16th April, 2012), "The Effect of Land Use Controls on the Spatial Size of U.S. Urbanized Areas", Journal of Regional Science.

WEBLIOGRAPHY

1. Land Acquisition Act- dolr.nic.in/hyperlink/acq.htm
2. Urban Land (Ceiling & Regulation) Repeal Act, 1999- moud.gov.in/files/pdf/ulcrra_1999
3. The Urban Land (Ceiling and Regulation) Act, 1976- indiankanoon.org/doc/1005850/

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	1	0	0	0	1
2	2	2	1	2	2	2
3	2	3	2	3	1	3
4	3	3	3	3	3	3

CE – 643: RURAL PLANNING AND DEVELOPMENT

L T P C

3 0 0 3

Course Outcomes:

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

1. Understand the concept of rural planning and development
2. Interrelate the concept of agriculture development
3. Review national policies and technologies used in rural development.
4. Recognize institutions and organization setup of rural areas.

INTRODUCTION:

Introduction: Meaning and Scope and overview of rural development: Historical perspective – Rural Development Programmes in India. Problem / perception and identification; Rural Area Planning – Programmes / Policies / Schemes for rural development, their coverage and outcomes;

Rural Infrastructure Development: Bharat Nirman – A business plan for rural infrastructure, Rural Building Centers, PMGSY, IAY, Rajiv Gandhi Technology Mission, Central Rural Sanitation Programme, PURA. Rural Employment Schemes: Mahatma Gandhi National Rural Employment Guarantee Act, 2005, Sampoorna Grameen Yojana, National Food for work programme, Swarna Jayanty Gram Swarozgar yojana, National Social Assistance Programme. Programmes: Command Area Programme, Drought Prone Area Programme, Backward Area Development Programme, North Eastern Development Programme. Impacts and Implications of Rural policies on rural and urban development

Technology Missions: Water, Sanitation, etc. Five year plans on rural planning and development, various sectoral development programmes, interdependence and efficacy of socio-economic and infrastructural sectors.

PROFILE OF RURAL SETTLEMENTS:

Definitions need growth, distribution and classification of rural settlements, size from function and morphology of rural settlements.

Rural Settlement Analysis: Types, activity, environment and economic interface in rural habitat, technology in rural settlement; Mobility between rural and Urban Areas.

Land Utilization: Types of land utilization and its relevance to planning; Land conversions and its regulation / facilitation in peri-urban areas; Land utilization analysis; Common property and its use, tenancy and ownership, holding size and its relevance, irrigated and non-irrigated and land values; Changing Profile of the rural areas of India: Consumption pattern changes, land utilization changes, cropping pattern changes, holding size change, living standard changes, changes in asset ownership – its implication in the planning process. Internal and external structure of change.

Planning of village center. Planning and management of village clusters. Low cost and Vernacular Building technology for the development of rural areas. Concept of Ru-Urban

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

AGRICULTURAL DEVELOPMENT:

Allied activities, agriculture land use economic system and occupation productivity, expenditure and farming system Impact of modern technology, transport facilities, media and communication and trends at national and International level on agriculture and consequently on rural settlement their planning development.

RURAL INSTITUTIONS AND ORGANISATIONS:

Rural bank, Co-operatives, marketing and public administration Zila Parishad, Block Semity and Gram-Panchayat, powers and function of recently proposed Panchayat Raj Bill. Panchayati Raj Institution (PRI) Various Programs, Hierarchy of Panchayati Raj Institution, White revolution and Economy change in Rural development. Export promotion and SEZ Zones are identified in rural areas

Rationale of principles and techniques of rural planning and development, norms, standard preferences and strategy for rural areas, Improvement of infrastructure and augmentation of housing stock, water supply, health and educational facilities. Conservation of rural environment, form & structure, its art and architecture.

REFERENCES:

1. CHATTOPADHYAY B.C., "Rural Development Planning in India", S. Chand & Co, New Delhi.
2. H.R. HYE, "Integrated Approach to Rural Development", Sterling Publishers, New Delhi.
3. S.M. SHAH, "Rural Development Planning and Reform", Abhinav Publ., New Delhi.
4. H. RAMCHANDRAN, "Village Clusters and rural Development", Concept Publ. Co., New Delhi.
5. Mathew, George "Panchayati Raj, from Legislation to Movement" Concept Publishing Co., New Delhi
6. Government of India, "Constitution (73rd Amendment) Act 1992" GoI, New Delhi
7. Government of India, "Constitution (74th Amendment) Act 1992" GoI, New Delhi
8. Planning Commission "Manual of Integrated District Planning 2006" Planning Commission, New Delhi
9. Government of India, "Various Five Year Plans (1st to 12th)" Planning Commission, New Delhi
10. Govt. of Kerala "Kollam Perspective Plan 2009" Department of Town & Country planning, Thiruvananthapuram
11. Maheshwari, S. "Rural Development in India: A Public Policy Approach" 1985 Sage, New Delhi
12. Cokke, B. and Kothari, U (Eds.) "People's Knowledge, Participation and Patronage" 2001 ZED Books, London

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	1	0	0	0	1
2	2	0	0	1	1	3
3	3	3	1	2	2	3
4	3	3	2	1	1	0

CE - 645: GEOSPATIAL TECHNIQUES

L	T	P	C
3	0	0	3

Competency of Course:

On completion of this subject student will be able to solve complex urban planning problems using RS, GIS and GPS.

Course Outcomes:

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

1. Summarize various techniques of data acquisition
 2. Classify different data structures of remote sensing, GIS & GPS.
 3. Analyze images based on supervised and unsupervised techniques.
 4. Generate GIS database model using software
 5. Use spatial data analysis techniques for Urban Planning applications.
-

INTRODUCTION: (02 Hrs)

Introduction to GIS, Remote Sensing and GPS, Applications in various fields of engineering.

CONCEPTS AND FUNDAMENTALS OF REMOTE SENSING: (08 Hrs)

Basics of Aerial and Satellite Remote Sensing, Components of Remote Sensing, Principles of Remote Sensing, Energy Sources, Electro Magnetic Radiation (EMR), Electromagnetic Spectrum, Energy Interactions, Active and Passive Remote Sensing, Data acquisition, Remote Sensing Platforms, Satellites, Sensors.

IMAGE INTERPRETATION AND DIGITAL IMAGE PROCESSING: (10 Hrs)

Fundamentals of Air photo Interpretation, Keys, Elements of Air photo Interpretation for Terrain Evaluation. Digital image processing, Enhancement of Image, Supervised and Unsupervised Analysis, Classification and Analysis, Ground Truth.

STRUCTURE OF GIS: (08 Hrs)

Cartography, Geographic mapping process, Transformations, Map projections, Geospatial and Geomatics Data, Geographic Data Representation, Storage, Quality and Standards of Data, Database management systems, Raster and Vector data representation, Assessment of data quality, Managing data errors.

GIS DATA PROCESSING, ANALYSIS AND MODELLING: (10 Hrs)

Raster and Vector based data processing, Queries, Spatial analysis, Quadrant counts, nearest neighbour analysis, Network analysis, Surface modelling, DTM, Case studies of GIS Applications.

GLOBAL POSITIONING SYSTEM: (04 Hrs)

Concept, Components of GPS, GPS setup, Accessories, Segments-satellites & receivers, Case studies of GPS applications.

INTEGRATED APPLICATIONS: (03 Hrs)

Case studies of Integrated application of RS, GIS and GPS in the field of Urban Planning and Regional planning, Water resources, Environmental studies, Transportation engineering and other civil engineering fields.

(Total Contact Time: 45 Hours)

ASSIGNMENT:

- 1: Comparison of Aerial Photo and Satellite Image.
- 2: Key Generation for Aerial photo interpretation.
- 3: Aerial photo Interpretation.
- 4: Creating digital model using Survey of India Maps.
- 4: Satellite Image enhancement.
- 5: Satellite Image Analysis.
- 6: Landuse classification based on satellite image.
- 7: Raster and Vector Data Modelling.
- 8: Buffer Analysis for Service Location.
- 9: Assignment for GIS Modelling.

REFERENCES:

1. Lo, C.P. & Yeung A.K.W., Concepts and Techniques of Geographic Information Systems, Prentice Hall of India, New Delhi, 2002.
2. Anji Reddy, M., Remote Sensing and Geographical Information Systems, B.S. Publications, Hyderabad, 2001.
3. Burrough, P.A., Principles of Geographical Information Systems, Oxford Publication, 1998.

4. Clarke, K., Getting Started with Geographic Information Systems, Prentice Hall, New Jersey, 2001.
5. DeMers, M.N., Fundamentals of Geographic information Systems, John Wiley & Sons, New York, 2000.
6. Kennedy M., The Global Positioning System & GIS: An Introduction, Ann Arbor Press, 1996.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	0	1	1	0	0
2	2	1	2	1	1	2
3	3	2	2	3	2	2
4	3	2	3	3	2	3
5	3	2	3	3	3	3

CE – 647: SUSTAINABLE BUILDING PLANNING

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Assess the environmental impact on buildings by applying sustainable building techniques.
2. Review sustainable building planning policies, implementation, and innovative building materials for low-cost housing
3. Apply green building concept and principles of Vernacular architecture

SUSTAINABLE DEVELOPMENT AND PLANNING: concept, perspectives, need and importance, Environmental impact of building sector, current situation of environmental policies for building sector, concept and elements of sustainable planning for building industry, past perspectives on planning, situating sustainable planning within planning theory, Planners roles

SUSTAINABLE BUILDING PLANNING: Policies and exploring implementation gaps, urban design, Environment protection, site planning, energy conservation through planning and modeling, water use reduction, passive solar design, building technologies, indoor air quality, barriers to implementation of sustainable building measures, checklist for sustainability, policy recommendations for sustainable buildings.

Innovative building material for rural and urban areas, Low Cost Infrastructure in rural Areas and Cost Cutting of housing Infrastructure.

URBAN HOUSING AND INFRASTRUCTURE: Vernacular Architecture; Urban climate and effect of built environment, Impact of urbanization on sustainability, growth and issues related to sustainability

GREEN BUILDINGS: Concept and need, design principles, growth at International and national level, benefits, construction techniques, green materials, planning and case studies of residential. Commercial and industrial buildings. Green building Evaluation Systems; LEED Certification; Green Globe Certification.

BUILDING PERFORMANCE ASSESSMENT: concept, tools at international and national level, process of green building certification, comparison of different tools like LEED INDIA, GRIHA, SBTool etc. Recent researches on sustainable building development and assessment tools.

REFERENCES

1. "Planning for sustainability: creating livable, equitable and ecological communities" by Stephen M. Wheeler (2004), Routledge, Taylor and Francis group, New York.
2. "Towards sustainable building" by Nicola Maiellaro (2001), Kluwer academic publishers, Netherlands.
3. "Sustainable building design manual: Sustainable building design practices" by The Energy and Resources Institute, New Delhi.
4. "Environmentally sustainable buildings: challenges and policies" by Takahiko Hasegawa (2003), Organization for economic co- operation and development (OECD) publications, France.
5. Thomas E Glavinich; Green Building Construction; Wiley; 2008

Mapping CO's with PO's:

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	3	3	3	2	3	3
2	3	3	2	2	2	2
3	3	2	3	3	2	3

CE – 649: DISASTER MANAGEMENT

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Identify housing design and planning at pre and post disaster level
2. Integrate disaster management in development plan.
3. Apply geospatial software QGIS for Disaster mitigation strategies.

DISASTER:

Meaning, factors and significance, Characteristic, causes and effects of natural hazards viz. Drought, earthquake, flood and other hazards, Vulnerability, Risk, Capacity – Disaster and Development, Global Disaster Trends – Emerging Risks of Disasters – Climate Change and Urban Disasters

Disaster profile of India – regional and seasonal, Scope and objectives of disaster mitigation, Preparedness and response. Prerequisite for preparedness planning, action plans and procedure, models and checklists. Disaster response planning in Tsunami and Natural Hazards or Natural Disasters, roles and responsibilities of various agencies. Emergency operation support and management. Role of urban planner

DISASTER MANAGEMENT CYCLE AND FRAMEWORK:

Disaster Management Cycle – Paradigm Shift in Disaster Management Pre-Disaster – Risk Assessment and Analysis, Risk Mapping, zonation and Microzonation, Prevention and Mitigation of Disasters, Early Warning System; Preparedness, Capacity Development; Community based DRR, Structural non structural measures in DRR; Roles and Responsibilities, Public Awareness and Warnings, Conducting a participatory capacity and vulnerability analysis, Sustainable Management, Survey of Activities Before Disasters Strike, Survey of Activities During Disasters, DRR Master Planning for the Future, Capacity Building, Sphere Standards. Rehabilitation measures and long term reconstruction. Psychosocial care provision during the different phases of disaster.

Awareness During Disaster – Evacuation – Disaster Communication – Search and Rescue – Emergency Operation Centre – Incident Command System – Relief and Rehabilitation – Post-disaster – Damage and Needs Assessment, Restoration of Critical Infrastructure – Early Recovery – Reconstruction and Redevelopment; IDNDR, Yokohama Strategy, Hyogo Framework of Action

REFERENCES:

1. Thomas Scheneid (2000), "Disaster Management and Preparedness", CRC Press.
2. Harsh K. Gupta (2003), Disaster Management, Indian National Science academy.
3. Vinod K. Sharma (1997), Disaster Management, National Center for Disaster Management.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	2	2	2	1	2
2	3	3	3	3	3	3
3	3	3	3	3	2	3

CE – 871: SOFT COMPUTING TECHNIQUES

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Review the concepts of Genetic Algorithms and Fuzzy Set Theory
 2. Comprehend the knowledge of black-box modelling.
 3. Apply knowledge of Algorithm and Artificial Neural Networks
-

GENETIC ALGORITHMS: Introduction to Genetic Algorithms, Genetic Operators and Parameters, Genetic Algorithms in Problem Solving, Theoretical Foundations of Genetic Algorithms, Implementation Issues.

FUZZY SET THEORY: Introduction to Fuzzy Sets, Operations on Fuzzy sets, Fuzzy Logic, Fuzzy Measures.–Fuzzification – Fuzzy Rule based Systems – Fuzzy propositions – Applications.

ARTIFICIAL NEURAL NETWORKS: Basics of ANN; Models of a Neuron – Topology: Multi-Layer Feed Forward Network (MLFFN), Radial Basis Function Network (RBFN), Recurring Neural Network (RNN) – Learning Processes: Supervised and unsupervised learning. Error-correction learning, Hebbian learning; Single layer perceptrons – Multilayer perceptrons.

Hybrid Systems: Fuzzy neural systems – Genetic Fuzzy Systems – Genetic Neural Systems.

APPLICATIONS OF COMPUTATIONAL INTELLIGENCE:

Printed Character Recognition – Inverse Kinematics Problems – Automobile Fuel Efficiency Prediction – Soft Computing for Color Recipe Prediction. MATLAB: Fundamentals and Application

REFERENCE:

1. Timothy J. Ross, Fuzzy Logic with Engineering Applications, McGraw – Hill
2. J.S.R.Jang, C.T.Sun and E.Mizutani, “Neuro-Fuzzy and Soft Computing”, PHI, 2004, Pearson Education 2004.
3. J.M. Zurada, Introduction to artificial neural systems., Jaico Publishers
4. H.J. Zimmermann, Fuzzy set theory and its applications. III Edition, Kluwer Academic Publishers, London.

5. Suran Goonatilake, Sukhdev Khebbal (Eds), intelligent hybrid systems, John Wiley & Sons, New York, 1995.
6. S. Rajasekaran & G. A. Vijayalakshmi Pai, Neural Networks, Fuzzy Logic and Genetic Algorithms: Synthesis & Applications, PHI, 2003.
7. S. N. Sivanandam & S. N. Deepa, Principles of Soft Computing, Wiley - India, 2007.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	0	0	1	1	1
2	1	0	1	1	2	2
3	2	1	2	2	2	3

ELECTIVES – II

CE – 646: REGIONAL PLANNING

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Understand the concept of regional planning & development.
2. Identify the Requirement of resources for regional development
3. Apply various theories for balanced regional development.

UNIT – 1 REGION AND REGIONAL DYNAMICS

Region: Definition, Typology, classifications and Delineation of regions.

Regional Dynamics: Growth of Mega and Metro Regions: Scale, Complexity and its impact on national and international scenario, convergence and divergence.

Regional Economy, competitiveness among regions, backward and leading regions in development; Special Regions: SEZ, Agro Regions, Ecological regions, etc.

UNIT - 2 REGIONS IN INDIA AND ITS PLANNING

Regions in Indian Context: Resource Regions, Corridors as regions, National, subnational and State as a region, macro, meso and micro regions in India.

Role of resources in regional development, utilization of resources and environmental problems Sectoral and regional development and imbalances, multilevel planning, special area development plans. Balanced developed development national and state level planning mechanism.

Case Studies from India: NCR and Delhi Mega Region, Mumbai Mega Region, Greater Mumbai, Kolkata Metro Region, Chennai Metro Region, and other Metro Regions in India. Regional development planning in other countries. Special region plans

Resource Regions in India: Western and Eastern Ghats, North Eastern Region, Coastal Regions, and River Valley Regions; Corridors: Golden Quadrilateral, Delhi-Mumbai, Chennai-Bangalore Industrial Corridor, North-South and East-West Corridor Regions.

UNIT - 3 CORE AND PERIPHERY IN A REGION IN INDIAN CONTEXT

Core, Fringe and Periphery in a Region and its planning; Tools and techniques available for planning regions in India; Role of 73rd and 74th Constitution Amendment Acts in regional plan Preparation and implementation. Concept of District Planning.

UNIT -4 ELEMENTS OF MICRO AND MACRO ECONOMICS

Basic Economics: Demand, Supply, Elasticity, Revenue Cost, National Income, Consumption, Investment, Inflation, Capital Budgeting

Development Economics: Economic Growth and development, Human Development Index, Economic Principles, Policies and strategies in Land use planning.

UNIT – 5 TECHNIQUES AND GROWTH MODELS OF REGIONAL ANALYSIS :

Regional Analysis: Introduction to regional analysis, regional linear programming, regional input-output analysis, factor analysis, industrial location theory, spatial diffusion theory, gravity analysis.

GROWTH MODELS: Concept of growth pole and growth foci, core-periphery concept, role of settlements in regional development, urbanisation and regional development, input – output models, central place theory Christaller Losch.

BOOKS RECOMMENDED:

1. CHAND MAHESH AND U.K. PURI, "Regional Planning in India", Allied Publishers, New Delhi, 1983.
2. GLASSON JOHN, "Introduction to regional planning ", Hutchinson and MIT Press, Cambridge, 1996.
3. INSARD WALTER, "Methods of Regional Analysis - An introduction to Regional Science", MIT Press, Cambridge, 1960.
4. R.P. MISHRA, "Regional Planning and Development in India", Vikas, Bombay, 1972.
5. K.V. SUNDARAM, "Urban and Regional Planning in India", Vikas Publishers, New Delhi.
6. Chaudhuri, Ray Jayasri, "An Introduction to Development and Regional Planning "Orient Longman Ltd (2001), Kolkata

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	1	0	1	1	0
2	3	1	3	2	2	1
3	3	2	2	2	1	2

CE - 708: PUBLIC TRANSPORTATION PLANNING

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Understand evolution of urban transportation and various issues
 2. Classify various modes of transit system, its operation and management
 3. Assess the impact Urban land policies, land use and environmental
 4. Review various transit characteristics as well as transit cost, finance and policies.
-

URBAN TRANSPORTATION:

Issues, problems, safety, role of transit, choice of transit technology, evolution of urban transportation, operational capability during disaster

TRANSIT SYSTEM:

Modes; bus& coaches, Train (Commuter, intercity and high speed rail), tram and light rail, Rapid transit, personal rapid transit, cable-propelled transit, Ferry, Auto-Rickshaws, paratransit system Innovative technology. Feeder services

PLANNING TRANSIT NETWORKS:

Planning approach, accessibility, connectivity to other modes, network configuration, design of single route, Spacing Of Routes & bus stops, frequency of service.

TRANSIT OPERATION & MANAGEMENT:

Operating cycle, scheduling, special services, fare collection.

TRANSIT & URBAN DEVELOPMENT:

Impact on development, land use thereby, urban form, environmental impact, energy policy, regulations: food & drinks, smoking, noise and banned items, associated public utilities: pedestrian crossings, public toilets, eateries

TRANSIT CHARACTERISTICS:

Characteristics of transit travel riders, attitudes, modal splits special group of users, passenger load factor.

TRANSIT COST FINANCE & POLICES:

Fund raising, Construction, vehicle and operating costs, elasticity of demands, future policies, policy issues, public private partnership (PPP)

REFERENCES:

1. ALAN BLACK, "Urban mass transportation planning", McGraw Hill (1995).
2. PETTER R. WHILE, "Planning for public transport", Hutchinson and Company Limited.
3. ASHISH VERMA , T.V. RAMANYYA , "Public transport planning and management in developing countries" , CRC Press (2014)

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	2	1	0	0	1
2	1	1	1	1	1	1
3	2	3	3	2	3	3
4	3	3	2	2	2	2

CE – 648: PLANNING LEGISLATION

L	T	P	C
3	0	0	3

Course Outcome:

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

- 1. Describe different legislations related to urban planning and policy.
- 2. Demonstrate the legal procedures for preparation and implementation of Regional Plans, Master Plans and Town Planning Schemes.
- 3. Illustrate the regulations for planning.
- 4. Explain the role of politics in planning

PLANNING LEGISLATION AND POLICY FORMULATION AND APPRAISAL

Evolution; An over view of legal tools connected with Urban Planning and Development, Town and Country Planning Act, Improvement Trust Act, Urban Planning and Development Authorities Act – objectives, contents, procedures for preparation and implementation of Regional Plans, Master Plans and Town Planning Schemes. Various Acts related to urban governance, planning and development organizations, land resources, environment protection, and public participation in statutory planning process; Approaches of formulation of policies, appraisal of policies.

UNDERSTANDING OF LAW

Concepts, sources, terminologies, significance of law and its relationship to Urban Planning benefits of statutory backing for schemes - eminent domain and police powers; Indian Constitution: concept and contents; 73rd and 74th Constitution Amendment Act, provision regarding property rights.

CITY AND THE STATE

State as a manager of resources – property rights, norms and standards – Government market and market by Government – Regulatory State, Reforming State, and Rent Seeking State – their spatial implications; Development planning and the Indian state – Centralization, powerlessness and decentralization; spatial politics and competition; Politics of the State and bureaucracy; New State spaces, invited and contested spaces – changing role of the state.

LEGISLATION FOR URBAN MANAGERS

Significance and Objectives of Legislation for Planners, Constitutional Basis and Provisions, Legal Framework in Town and Country Planning, Preparation and Implementation of Regional Plan/Development plan, T.P. Scheme in Light of The Gujarat Town Planning Act, 1976, Provisions of Land Acquisition Act, Urban Land Ceiling Act and Conservation Act.

REGULATIONS

Financing of infrastructure including exactions, tax policies, funding municipal services. Zoning and land use control regulatory takings, vested rights, permits and project review

ROLES OF POLITICS IN PLANNING

Politics related to land, shelter, urban infrastructure, resources; Regeneration and redevelopment politics; politics of provision, financing and pricing; decision-making and decision-taking, Politics and emergence of civil society – NGO, CBO and their role in planning, development and management, collective bargaining and collective action.

REFERENCES

1. UDPFI Guidelines, Ministry of Urban Dev., Govt. Of India.
2. The Gujarat Town Planning and Urban Development Act, Vora Prakashan, Ahmedabad.
3. R.B. Das, Urban Planning and Local Authority, Oxford and IBH Publication, Calcutta.
4. Handbook of Environmental Laws, Vol. I and II, Enviro-media Publication, Karad, Maharashtra.
5. Maharashtra Act No. IV of 1975: The Bombay Metropolitan Region Development Authority Act, 1974, Govt. of Maharashtra, Law and Judiciary Deptt., published by the 7. Director General, Govt. Printing, Stationery and Publications, Maharashtra State, Bombay 400004

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	1	0	0	0	1
2	1	3	1	2	2	2
3	2	3	1	3	0	3
4	2	1	2	1	0	0

CE - 652: REAL ESTATE MANAGEMENT

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Understand the concept and principles of real estate sector
2. Identify the role of urban building industry
3. Review urban land policy and its direct government action, legal and physical controls.

REAL ESTATE

Terminology Land Documentation, Land Revenue Records, Document Registration, City Survey Record, Land Registration Process, Property Card, Index

concepts and characteristics; Urban real estate market problems, factors affecting real estate property, rights and interests; Contract law and real estate; Speculation in urban land; betterment and worsening.

ECONOMICS & LOCATION Modelling:

Factors affecting different land uses such as residential, commercial, industrial, public and semi-public; Land value – Concept and factors affecting; Rent and modern theory of rent; Macro and Micro approaches of Location such as trade-off model and environment preference model.

URBAN LAND POLICY

Contents, importance, objectives, measures, instruments for its implementation, direct Govt. action, legal and physical controls; Relationship between economic trends, land market and urban development.

Modern Methods for Land Pooling; PPP method for Land Pooling; Issues and strategies for Land Management

BOOKS RECOMMENDED:

1. Lean, W., (1982), "Aspects of Land use Planning" Gonthic Publications, New Jersey.
2. Paul, B.N., (1997), "Urban Land Economics", The McMillan Press, London.
3. Singh B, (2011), "Urban Infrastructure and Real Estate Management, Surendra Publications.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	0	0	0	0	0
2	2	1	1	1	0	1
3	2	3	2	1	2	2

CE - 654: URBAN DESIGN & LANDSCAPE DEVELOPMENT

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Implement sustainable and balanced urban planning with beauty, convenience and health with the use of dynamic architectural techniques.
 2. Design using strategies like concept planning, designing, development; zoning by function to balance urban area.
 3. Develop Revenue generation techniques
-

SCOPE AND OBJECTIVES OF URBAN DESIGN:

Its relation with architecture and urban planning, scale of various urban design projects, regional and city level, urban design survey, inventories, techniques/approaches to urban design. Concepts and theories in landscape architecture/city planning urban design in the historical perspective, origin of forms, organization of space, relationship of activity with buildings.

BEHAVIORAL ISSUES IN URBAN DESIGN:

Principals of urban spatial organization, urban scale, urban spaces, urban massing, quality of urban enclosure.

Imageability, townscape and elements of urban design (Gordon, Cullen, Kevin Lynch) Urban conservation with historic preservation and integrated approach to conservation, urban renewal, its purpose, economics and planning issues.

URBAN DESIGN AT MICRO LEVEL:

Campus planning, city centers, transportation corridors, residential neighbourhood, water fronts. Urban landscape in relation to topography.

DEVELOPMENT CONTORL GUIDELINES:

Zoning, Historical examples of urban design projects. Evaluation/ fesibilitly study of urban design projects.

OBJECTIVES AND SCOPE OF LANSCAPE PLANNING:

Behavioural issues in landscape design, principles and aesthetic theory in landscape design, Land from design and elements of geomorphology, hydrology, pedology, drainage in landscape planning. Spatial organization of selected cities, emphasizing landscape assessment.

Site and resources inventory methods, analyses and appraisal, landscape suitability analysis, Plant characteristics and planting design, environmental factors in landscape planning.

OUTDOOR RECREATION AND TOURISM: Planning and design issues.

LANDSCAPE PLANNING:

Urban and regional level open spaces, residential neighborhoods, urban roads and regional highways, coastal area landscape planning. Landscape Urbanism, sustainable landscape, streetscape Waterfronts, evolution of different landscape philosophies.

OPEN SPACE SYSTEM

Concept for open space and park system in urban area.

Open space development in urban design context. Evolution of Public Park as a major component of urban landscape. Open space development in new towns. Park systems, water fronts. Green infrastructure. Urban ecology, urban water sheds.

EVALUATION PROCESS IN LANDSCAPE PLANNING:

Critical appraisal of historical examples of landscape plans. Relevance of Social forestry in urban and regional landscape planning.

BOOKS RECOMMENDED:

1. Paul, De Spreiregen, "Urban Design: The Architecture of Town and Cities", McGraw Hill Book Company, New York.
2. Cullen Garden, "Townscape", Architecture Press, London.
3. I.C. Monty, "Park Planning Handbook", John Wiley
4. Matthew Carmona, Tim Heath, Public places – Urban spaces, Architectural press, 2003.
5. Elements and total concept of urban landscape design, Graphic –sha publishing Co, 2001
6. Tom Turner, City as landscape, Eand FN spon, 1996.
7. Cliff Tandy, Handbook of urban Landscape, Architectural Press, 1970.
8. *Ecological design and planning* George F. Thompson and Frederick R. Steiner, (Wiley, 1997)
9. *Landscape planning : an introduction to theory and practice* Hackett, Brian (Oriel, 1971)
10. *Landscape planning and environmental impact design* Tom Turner (2nd ed UCL Press, 1998)
11. *Design with nature* Ian L. McHarg (Wiley, 1992)
12. *The living landscape: an ecological approach to landscape planning* Steiner, Frederick R. (McGraw-Hill College, 1991)
13. Clinical Environmental Approaches in Landscape Planning (Urban and Landscape Perspectives) 2014th Edition by Hiroyuki Shimizu and Akito Murayama

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	3	2	2	1	3
2	3	3	3	3	3	3
3	2	2	2	3	3	3

CE – 656: TOURISM PLANNING & DEVELOPMENT

L	T	P	C
3	0	0	3

Course Objectives:

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

1. Understand the concept of tourism planning and development in urban and regional scale
 2. Promote tourism for economic development of a country.
 3. Practice modern techniques of tourism planning and development.
-

INTRODUCTION TO TOURISM

Definitions, scope, nature, classification and dimension, tourism as an industry, tourism in developed and developing world. Tourism as system, Demand and supply, Relationship between Tourism and Urban Development. Creation of Urban Space for recreation and tourism, Principles of Recreation, Leisure and Tourism. Nature and scope of a tourism plan- key issues and stages, data requirements, surveys, role of key players / stake holders in tourism policy and planning.

SUSTAINABLE PLANNING FOR TOURISM DEVELOPMENT:

Natural resource assessment; Techniques of tourism potential analysis; Concept of Eco-tourism, Environmental threats and planning precautions. Concepts and parametric analysis; Integrated wildlife, Tourism multiplier and forecasting methods: capacity building and carrying capacity planning for tourism projects, tourism and cultural and social change: Socio, Tourism infrastructure development, Tourism Project conception and preparation for project report.

TOURISM MANAGEMENT AND ECONOMICS:

Management and Economics of tourism industry and development management. Tourism marketing - concept, techniques and strategies. GIS application in tourism development, policies and programme at National State and District level. Tourism planning case studies.

POLICIES AND PROGRAMMES

Tourism policies at various levels. CASE STUDIES: Indian Site, 7 Projects for Gujarat Tourism

REFERENCES:

1. Colin Michael Hall (2008), "Tourism Planning: Policies, Process & relationship", Prentice Hall.
2. David Newsone (2008), " Natural area tourism Ecology impacts and management", Chainal View Publication
3. Clare Gunn (2009)," Tourism Planning: Basics, Concepts, cases", France & Taylor Publication
4. Charles R. Goeldner , J. R. Brent Ritchie "Tourism: Principles, Practices,Philosophies" (2009) John Wiley & Sons
5. A. Satish Babu "Tourism Development in India" (2008)
6. APH Publishing Corporation, New Delhi
7. Christopher M Law "Urban Tourism: The Visitor Economy and the Growth of Large Cities (2009),Continuum
8. K.K. Sharma, "Planning for Tourism" (2003) Sarup & Sons, New Delhi
9. Planning Commission "Working Group Report on Tourism (2012-2017)"(2012) Planning Commission, Government of India
10. Ministry of Tourism "Strategic Action Plan for Tourism in India" (2011) Ministry of Tourism, Government of India

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	1	0	0	0	0	0
2	2	2	2	3	1	3
3	3	2	3	3	1	3

CE – 658: APPLIED STATISTICAL ANALYSIS

L	T	P	C
3	0	0	3

Course Outcomes:

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

1. Explain the multivariate analysis and its application.
2. Analyze the multivariate data using different multivariate models
3. Interpret the outcomes of Multivariate models.

INTRODUCTION:

Concept, Scope, Introduction to multivariate statistical modelling, univariate descriptive statistics, sampling distribution, estimation, hypothesis testing

BASIC MULTIVARIATE STATISTICS:

Multivariate descriptive statistics, multivariate normal distribution, multivariate inferential statistics

MULTIVARIATE MODELS:

Analysis of variance, multivariate analysis of variance, multiple regression analysis, multivariate linear regression, principle component analysis, factor analysis, structural equation modelling, cluster analysis, correspondence analysis

REFERENCES:

1. Å Johnson, R. A. and Wichern, D. W. (2009), "Applied Multivariate Statistical Analysis", 5th Edition, Prentice Hall International, U.S.A.
2. Muirhead, R. J. (1982), "Aspects of Multivariate Statistical Theory", John Wiley and Sons Ltd. (Wiley Series in Probability and Mathematical Statistics. Probability and Statistics), Canada.
3. Hair, J., Anderson, R., Babin, B.J., and Black, W. (2014). "Multivariate data analysis", 7th Edition, Pearson Education Ltd, UK.

Mapping of COs with POs

Course Objective	Program Specific Outcome			Program Outcomes		
	PSO1	PSO2	PSO3	PO1	PO2	PO3
1	2	0	0	0	0	0
2	1	2	2	2	1	2
3	2	2	2	2	2	3

