Teaching and Examination Schemes with Syllabus

of

Master of Technology

in

Urban Planning

(Effective 2022-23)

(Approved by the SEC of Senate dated August 8, 2022)

Department of Civil Engineering
Sardar Vallabhbhai National Institute of Technology, Surat

Vision and Mission of the 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

Vision and Mission of the Department

Vision

To be a global centre of excellence for creating competent professionals in Civil Engineering

Mission

- 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
- To provide consultancy services and develop partnerships with society, industry and public organizations.
- To organize seminar, conferences, symposia and continuing education programmes for academic and field community.

Foreword

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 Maters 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 at Central and State level, 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.

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Programme Educational Objectives (PEOs)

The graduates of the M. Tech. Urban Planning Programme will:

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 Outcomes (POs)

The outcomes of the Master of Technology programme in Urban Planning are:

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 Specific Outcomes (PSOs)

- 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 economical, 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	Code	Teaching Scheme Hours per week			Credit	Examination Scheme			Total Marks
			L	T	P		Theory	Tutorial	Practical (ICE + ESE)*	
1	Urban Planning Fundamentals	CEUP101	3	0	2	04	100	-	20+30	150
2	Housing	CEUP102	3	0	2	04	100	-	20+30	150
3	Traffic and Transportation Planning	CEUP103	3	1	0	04	100	25	-	125
4	Core Elective-1	CE#####	3	0	0	03	100	-	-	100
5	Core Elective-2	CE#####	3	0	0	03	100	-	-	100
6	Planning Studio – I	CEUP104	0	0	4	02	-	-	40+60	100
7	Planning Studio – II	CEUP105	0	0	4	02	-	-	40+60	100
		Total	**15**	**1**	**12**	**22**	**500**	**25**	**300**	**825**

* Internal continuous evaluation + End-semester evaluation

Core Elective 1

CEUP 110 Urban Land Management
CEUP 111 Rural Planning and Development
CEUP 112 Technical & Professional, Writing & Communication
CETP 116 Research Analytical Methods

Core Elective 2

CEUP 121 Geospatial Techniques
CEUP 122 Sustainable Building Planning
CETP 220 Soft Computing Techniques

SEMESTER – II

Sr. No.	Course	Code	Teaching Scheme Hours per week			Credit	Examination Scheme			Total Marks
			L	T	P		Theory	Tutorial	Practical (ICE + ESE)*	
1	Urban Infrastructure Planning & Management	CEUP201	3	1	0	04	100	25	-	125
2	Urban Governance and Legislation	CEUP202	3	1	0	04	100	25	-	125
3	Core Elective-3	CE#####	3	0	0	03	100	-	-	100
4	Core Elective-4	CE#####	3	0	0	03	100	-	-	100
5	Institute Elective-1	#######	3	0	0	03	100	-	-	100
6	Planning Studio – III	CEUP203	0	0	4	02	-	-	40+60	100
7	Planning Studio – IV	CEUP204	0	0	4	02	-	-	40+60	100
		Total	**15**	**2**	**8**	**21**	**500**	**50**	**200**	**750**

* Internal continuous evaluation + End-semester evaluation

Core Elective 3

CEUP 210 Sustainable Urban Planning Practices
CEUP 211 Planning Legislation
CEUP 212 Tourism Planning and Development
CEUP 213 Urban Economics & Sociology
CEUP 214 Climate Change & Human Settlement
CEUP 215 Urban Infrastructure Planning & Management

Core Elective 4

CEUP 220 Regional Planning
CEUP 221 Real Estate Management
CEUP 222 Urban Design and Landscape development
CEUP 223 Planning & Development of Informal Sector
CEUP 224 Urban Dynamics

Institute Elective 1

CECS230 AI/ML Based Applications in Civil Engineering

SEMESTER – III

Sr. No.	Course	Code	Teaching Scheme Hours per week			Credit	Examination Scheme			Total Marks
			L	T	P		Theory	Tutorial	Practical (ICE + ESE)*	
1	Seminar	CEUP301	0	0	2	1	-	-	20+30	50
2	Summer Training	CEUP302	0	0	0	2	-	-	40+60	100
3	Dissertation Preliminaries	CEUP303	0	0	12	6	-	-	80+120	200
4	Design Portfolio	CEUP304	0	0	8	4	-	-	80+120	200
		Total	**0**	**0**	**22**	**13**	**0**	**0**	**550**	**550**

* Internal continuous evaluation + End-semester evaluation

SEMESTER – IV

Sr. No.	Course	Code	Teaching Scheme Hours per week			Credit	Examination Scheme			Total Marks
			L	T	P		Theory	Tutorial	Practical (ICE + ESE)*	
1	Dissertation	CEUP401	0	0	24	12	-	-	160+240	400
		Total	**0**	**0**	**24**	**12**	**-**	**-**	**160+240**	**400**

* Internal continuous evaluation + End-semester evaluation

Total Credits: 68

Assessment of Performance

Assessment of Theory Courses

The evaluation pattern for the theory courses, *as of now*, shall be as under:

Mid-semester examination: 30 marks
Assignment/Quizzes: 20 marks
Tutorials (if applicable): 25 marks
End-semester exam: 50 marks

The mid- and end-semester examinations are of 1.5 hours and 3 hours, respectively.

Assessment of Seminar

Internal assessment of 40% weightage by guide(s) and Final assessment of 60% weightage by a panel of examiners

Assessment of Dissertation/Projects

Internal assessment of 40% weightage by guide(s) and Final assessment of 60% weightage by a panel of examiners including an examiner from outside the institute

For more details please refer to the institute website
https://www.svnit.ac.in/Data/Notice/AcademicRegulations2013-2014.pdf

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

Name of the Department	Name of the Program	Eligible UG degree	Degree Code as per CCMT 2021 list	Eligible GATE subject	GATE subject code
Department of Civil Engineering	M. Tech. (Urban Planning)	B.E./B.Tech. Civil Engg.	(T118)	Civil Engineering	CE
		B.E./B.Tech. Transportation Urban Planning	(T185)	Civil Engineering	CE
		Bachelor of Architecture	(A401)	Architecture and Planning	AR
		Bachelor of Planning	(A402)	Architecture and Planning	AR
		B.E./B.Tech. in Architectural Engineering	(T106)	Architecture and Planning	AR
		B.E./B.Tech. in Architecture	(T107)	Architecture and Planning	AR
		B.E./B.Tech. in Building and Construction Technology	(T114)	Civil Engineering	CE
		B.E./B.Tech. in Civil Environmental Engineering	(T119)	Civil Engineering	CE
		B.E./B.Tech. in Planning	(T171)	Architecture and Planning	AR
		B.E./B.Tech. in Town planning	(T183)	Architecture and Planning	AR
		B.E./B.Tech. in Architecture and Regional Planning	(T193)	Architecture and Planning	AR
		B.E./B.Tech. in Civil Engineering and Planning	(T208)	Civil Engineering	CE
		B.E./B.Tech. in Civil Technology	(T209)	Civil Engineering	CE
		B.E./B.Tech. in Town and Country Planning	(T322)	Architecture and Planning	AR
		B.E./B.Tech. in Civil and Transportation Engineering	(T324)	Civil Engineering	CE
		B.E./B.Tech. in Architecture and Interior Decoration	(T332)	Architecture and Planning	AR
		B.E./B.Tech. in Civil and Transportation Technology	(T336)	Civil Engineering	CE
		B.E./B.Tech. in Civil Engineering (Public Health Engineering)	(T337)	Civil Engineering	CE
		B.E./B.Tech. in Urban and Regional Planning	(T383)	Architecture and Planning	AR
		B.E./B.Tech. in Civil and Infrastructure Engineering	(T425)	Civil Engineering	CE

Course-wise Detailed Syllabus

SEMESTER – I

CEUP101 URBAN PLANNING FUNDAMENTALS

L	T	P	C
3	0	2	4

1. Course Outcomes (COs)

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

CO1	Understand town planning concepts and theories.
CO2	Recognize the concepts for different area planning.
CO3	Identify different growth patterns and models.
CO4	Implement different guidelines, norms, land use planning policies, and survey techniques.
CO5	Develop various premises of different scales using the principles of urban planning.

2. Syllabus

- **EVOLUTION OF TOWN PLANNING (10 Hours)**

  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: (09 Hours)**

  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: (06 Hours)**

  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: (08 Hours)**

  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: (08 Hours)**

  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** **(04 Hours)**

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

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(Total Lectures: 45 Hours)

3. References

1. Gallion A., Eisner S., (2005), "The Urban Pattern: City planning and design", CBS Publishers and Distributors Pvt. Ltd, Delhi.
2. Rishma A., "Town Planning in Hot Cities", Mir Publishers, Moscow.
3. Ward S., (2002), "Planning the 20th Century City" John Willer & Sons.
4. Shivramakrishnan K. C., (2011), "Revisioning Indian Cities", Sage Publications
5. F. S. Hudson, Macdonald and Evans Ltd. Estover, (2002)'Geography of Settlements', Plymouth

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	2	1	2	1
CO2	1	0	2	2	2	1
CO3	2	0	2	3	2	2
CO4	3	2	3	1	3	2
CO5	3	3	3	3	2	3

CEUP102 HOUSING

L	T	P	C
3	0	2	4

1. Course Outcomes (COs)

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

CO1	Understand the housing forms and their relationship with urban areas.
CO2	Review the policies, norms, bylaws, and housing schemes in the Indian context.
CO3	Discuss housing scenarios, housing finance, the housing market, and the role of stakeholders
CO4	Compare housing typologies in the context of different climatic conditions
CO5	Design and plan residential areas considering socio-economic factors.

2. Syllabus

- **PLANNING OF RESIDENTIAL AREAS:** (**10 Hours**)

  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:** (**09 Hours**)

  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:** (**12 Hours**)

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

- **HOUSING MARKETS:** (**08 Hours**)

  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:** (**06 Hours**)

  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.

(Total Lectures: 45 Hours)

3. References

1. Dwivedi R. M., (2007), "Urban development and housing in India 1947-2007" New Century Publications, New Delhi.

2. 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
3. Khanna P. N., (2019), “Indian Practical Civil Engineers Handbook”, Engineers Publishers
4. Goswami D., (2012), “Housing and Urban Poverty Alleviation”, SAAD Publications, Delhi
5. Kishor C. (2008), “Informal Sector: Concept, Dynamics, Linkages & Migration”, Concept Publishing Company, New Delhi.

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	1	1	2	1
CO2	1	2	2	1	3	1
CO3	2	1	2	2	3	2
CO4	2	1	2	3	3	2
CO5	3	3	3	3	3	3

CEUP103 TRAFFIC AND TRANSPORTATION PLANNING

L	T	P	C
3	1	0	4

1. Course Outcomes (COs)

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

CO1	Distinguish the concept of urban transport scenario, traffic characteristics, and transport development
CO2	Understand the concept of urban mobility, terminals and logistics
CO3	Practice urban transport planning and modelling with use of Software
CO4	Apply the knowledge of traffic planning, management techniques, and design elements
CO5	Prepare short and long terms transport plans for current challenges in present and future cities.

2. Syllabus

- **TRAFFIC CHARACTERISTICS: (06 Hours)**
  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: (05 Hours)**
  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: (07 Hours)**
  Design of Transport Infrastructure like Intersection Design, signal design, parking space design, etc.
- **TRANSPORT DEVELOPMENT: (07 Hours)**
  Transport Development - Importance of 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: (06 Hours)**
  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 various software for transport planning and modelling.
- **MASS TRANSPORTATION PLANNING: (08 Hours)**
  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: (06 Hours)**
  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.

(Total Lectures: 45 Hours)

3. References

1. Kadiali, L.R.,(2019), "Traffic and Transportation Planning", Khanna Publishers, Delhi.
2. Papacoster, C.S. and Prevendons, (2002), "Transportation Engineering and Planning" Prentice Hall of India.
3. Morlok, K.E., (2002), Introduction to Transportation Engineering, McGraw-Hill, New York
4. Bernard Favre (2014) 'Introduction to Sustainable Transport'
5. Kevin J. Krizek and David A. King (2021) 'Introduction to Urban Transport Planning'

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	2	1	2	1	1
CO2	0	1	0	2	1	1
CO3	2	2	3	3	0	3
CO4	3	1	3	3	3	3
CO5	3	3	3	3	3	3

CEUP104 PLANNING STUDIO - I

L	T	P	C
0	0	4	2

1. Course Outcomes (COs)

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

CO1	Calculate the space and area requirement for different area planning as per guidelines and norms
CO2	Understand the fundamentals of plan preparation and approval.
CO3	Conduct perception study of neighbourhood
CO4	Identify and present the planning issues with stake holders consultations
CO5	Prepare area-based plan at neighbourhood scale and their implementation strategies.

2. Syllabus

- **STUDIO ON AREA PLANNING**

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

- **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.

(Total Contact Hours: 60 Hours)

3. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	3	3	2	3	3	1
CO2	1	3	1	1	3	1
CO3	1	1	1	2	2	1
CO4	2	1	2	3	2	3
CO5	3	2	3	3	3	3

CEUP105 PLANNING STUDIO - II

L	T	P	C
0	0	4	2

1. Course Outcomes (COs)

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

CO1	Understand the travel demand for the study area
CO2	Calculate the demand and supply for the given area as per guidelines and norms
CO3	Comprehend the concepts and practical aspects on urban mobility and road safety audit
CO4	Develop transportation infrastructure plan in all aspects for passengers and logistics
CO5	Prepare transport/ traffic management plans and their implementation strategies.

2. Syllabus

- **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.

(Total Contact Hours: 60 Hours)

3. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	1	0	0	1	2	0
CO2	3	3	2	3	3	1
CO3	1	1	1	1	2	1
CO4	3	3	3	3	3	3
CO5	3	3	3	3	2	3

CORE ELECTIVE – 1

CEUP110: URBAN LAND MANAGEMENT

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the significance of Urban Land Management.
CO2	Understand Land as Resources and its related terminology.
CO3	Postulate dynamics of Urban Land market.
CO4	Identify legal aspects of development and their impacts on real estate development
CO5	Apply land management techniques to manage urban growth

2. Syllabus

- **LAND MARKET DYNAMICS: (10 Hours)**

  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: (08 Hours)**

  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: (16 Hours)**

  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: (11 Hours)**

  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.

(Total Lectures: 45 Hours)

3. References

1. Lall S. V. (2009), Urban Land Markets: Improving Land Management for Successful Urbanization, Springer.
2. Randolph J. (2012), Environmental Land use planning and Management,2nd ed, Island Press.
3. Berke P. R. (2009), Urban Land use Planning, 5th ed, Chicago: University of Illinois Press.
4. Deakin M.(2016), 'Meethodologies, Models and Instruments for Rural and Urban Land Management', Routledge
5. Christopher C, (2011), 'Growth Management and Public Land Acquisition: Balancing Conservation and Development', Routledge

4. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	0	0	1	1	1	0
CO2	1	0	1	1	1	1
CO3	2	2	2	2	2	1
CO4	3	1	3	2	3	2
CO5	3	3	3	3	3	3

CORE ELECTIVE – 1

CEUP111: RURAL PLANNING AND DEVELOPMENT

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the concept of rural planning and development
CO2	Interrelate the concept of agriculture development
CO3	Review national policies and technologies used in rural development.
CO4	Recognize institutions and organization setup of rural areas.
CO5	Perceive the concept of Rurban and related terminology.

2. Syllabus

- **INTRODUCTION: (06 Hours)**

  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 PLANNING AND DEVELOPMENT: (08 Hours)**

  Programme of Rural planning and developments, Backward Area Development Programme, North Eastern Development Programme. Impacts and Implications of Rural policies on rural and urban development. Planning of village centre. Planning and management of village clusters. Low cost

- **PROFILE OF RURAL SETTLEMENTS: (06 Hours)**

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

- **RURAL SETTLEMENT ANALYSIS: (06 Hours)**

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

- **TECHNOLOGY FOR RURAL PLANNING AND DEVELOPMENT: (09 Hours)**

  Understating different missions, ICT in rural development, Rural Information system, Weather forecasting, disaster minimization, market information, etc. E-Panchayats, energy efficient technologies and alternative technologies

- **RURAL INSTITUTIONS AND ORGANISATIONS: (10 Hours)**

  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

(Total Lectures: 45 Hours)

3. References

1. Ramchandran H., Village Clusters and rural Development, Concept Publ. Co., New Delhi.
2. Planning Commission "Manual of Integrated District Planning 2006" Planning Commission, New Delhi

3. Government of India, “Various Five Year Plans (1st to 12th)” Planning Commission, New Delhi
4. Govt. of Kerala “Kollam Perspective Plan 2009” Department of Town & Country planning, Thiruvanantpuram
5. Cokke, B. and Kothari, U (Eds.) (2001), People’s Knowledge, Participation and Patronage, London: ZED Books.

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	1	2	1	0
CO2	1	1	3	2	0	0
CO3	2	2	3	3	3	1
CO4	1	1	0	3	3	2
CO5	2	1	2	3	3	2

CORE ELECTIVE – 1

CEUP112 TECHNICAL AND PROFESSIONAL COMMUNICATION AND WRITING

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the Urban Planning Vocabulary and terminologies
CO2	Develop writing ability for a technical and professional report
CO3	Differentiate between technical, scientific, legal, and other types of communication
CO4	Find the information and sources which are relevant to the topic
CO5	Prepare and deliver an oral and technical presentation

2. Syllabus

- **URBAN PLANNING VOCABULARY** (**08 Hours**)

  Terms and words related to Planning, Professional vocabulary of Urban Planning, Conceptualizing theories, and Designing language.

- **TECHNICAL AND PROFESSIONAL WRITING** (**12 Hours**)

  Types and Classification of Reports Types of reports Specific characteristics of writing technical reports English comprehension and oral communication Format and Elements of Reports Preface, acknowledgments, contents, indexing, keyword indexing, introduction, body terminal section, appendices, References and bibliography Literature surveys: Use of libraries, knowledge of indexing and available reference materials.

- **PROFESSIONAL COMMUNICATION** (**05 Hours**)

  Different types of communication, its delivery, and effectiveness

- **LITERATURE RESEARCH** (**12 Hours**)

  Identify specific requirements for evaluation/review and what constitutes the completion of your work. Differentiate between journals, conferences, books, magazines, and their quality. Understand how to establish their quality and authenticity. How to conduct effective searches How to find relevant papers related to your area of research How to capture critical information. Compare ideas and concepts from different papers.

- **PRESENTATION SKILLS** (**08 Hours**)

  Designing and colour schemes, Effective visual infographics, Online templates, Confidence in delivery, Body Language.

(Total Lectures: 45 Hours)

3. References

1. Krista L. (2012), 'The Insider's Guide to Technical Writing', Ingram short title
2. Gerald A. (2011), 'Handbook of Technical Writing', St. Martin's Press
3. Natasha T. (2010), 'Professional Writing Skills: A write it well guide'

4. Pravin B. (2001), 'Professional Communication Skill', S.Chand Publications

5. Paul A. (2017), 'Technical Communication: A Reader- centered approach 'Wadsworth Publishing Co IncBhatta B.,"Remote Sensing and GIS", Oxford University Press, New Delhi, 2008

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	1	0	2	0	0
CO2	2	3	3	1	0	1
CO3	2	3	1	1	1	2
CO4	1	2	1	2	2	3
CO5	2	3	2	1	1	1

CORE ELECTIVE – 1

CETP116: RESEARCH ANALYTICAL MEETHODS

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the importance of the research process in a systematic way
CO2	Classify different types of data, its collection and presentation
CO3	Interpret the validity of a particular phenomenon.
CO4	Identify select the best possible alternative out of many options.
CO5	Judge the appropriate type of sampling and to find the required number of samples for a given population.

2. Syllabus

- **SOCIAL RESEARCH FORMULATION (09 Hours)**

  Design of research - Scaling techniques - Sampling design - Design of questionnaire - Data collection and statistical processing, variables, types of variables, scaling of variables, coding of variables in software tools.

- **STATISTICS & PROBABILITY CONCEPTS (09 Hours)**

  Various probability distributions & their applications - Parameter estimation - Hypothesis testing - Random variables - Method of maximum likelihood - Hypothesis testing to compare multiple population - Statistical quality control.

- **HYPOTHESIS TESTING (09 Hours)**

  Hypothesis testing, types of error in hypothesis, confidence interval, significance tests for comparing variances and means, tests with small and large samples, two-tail and one-tail student's t-test, analysis of variance (ANOVA), non-parametric tests (Chi-square test and Kolmogorov–Smirnov test), central limit theorem, practice with transportation data.

- **REGRESSION ANALYSIS (09 Hours)**

  Simple linear regression, residuals and variances, Assumptions, multiple linear regression, two stage regression, forward, backward and step-wise regression, residual analysis, correlation analysis, type of correlations, coefficient of correlation, Karl-Pearson's coefficient, multivariate data analysis, factor analysis, applications in transportation engineering, goodness-of-fit tests and curve fitting.

- **OPTIMIZATION TECHNIQUES (09 Hours)**

  Linear programming - Simplex method - Transportation model - Concepts of non– linear programming - Decision theories – Rules - Decision under uncertainty, Applications in Transportation Engineering.

(Total Lectures: 45 Hours)

3. References

1. Benjamin J. R., Cornell C. A., Probability Statistics and Decision for Civil Engineers, McGraw-Hill, 1970.
2. Kothari, C.R., Research Methodology: Method and Techniques, New Age International Publication, 2004.

3. Hines W. W., Montgomery D. C., Probability and Statistics in Engineering and Management Science, John Wiley and Sons, New York, 1990.
4. Sharma J.K., Operation Research: Theory & Applications, MacMillan India Ltd., 2000.
5. Bhandarkar P.L., Wilkinson T.S., Methodology & Techniques of Social Research, Himalaya Publishing House, 1991.
6. Simon P. Washington, Matthew G. Karlaftis, Fred, Mannering L., Statistical and econometric methods for transportation data analysis, CRC Press, Second Edition, 2010.
7. Washinton SP, Karlafits MG, Mannering F.L., Statistical and econometric method for transportation data analysis, 2nd addition, CRC Press, 2011.
8. Richard A. Johnson, Dean W. Wichern, Applied Multivariate Statistical Analysis, Prentice Hall, 1992.
9. Cooley, WW and Lohnes, RR, Multivariate Data Analysis, John Wiley, 1971.
10. Joseph F. Hair, Bill Black, Barry Babin, Rolph E. Anderson, Ronald L. Tatham, Multivariate Data Analysis, Prentice Hall; 2005.

4. CO-PO-PSO Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	3	3	3	2	3	3
CO2	3	2	3	2	2	2
CO3	3	3	3	3	3	3
CO4	3	3	3	3	2	3
CO5	3	2	3	3	3	3

CORE ELECTIVE – 2

CEUP121: GEOSPATIAL TECHNIQUES

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Summarize various techniques of data acquisition
CO2	Classify different data structures of remote sensing, GIS & GPS.
CO3	Analyze images based on supervised and unsupervised techniques.
CO4	Generate GIS database model using software
CO5	Use spatial data analysis techniques for Urban Planning applications.

2. Syllabus

- **INTRODUCTION:** (**02 Hours**)
  Introduction to GIS, Remote Sensing and GPS, Applications in various fields of engineering and planning

- **CONCEPTS AND FUNDAMENTALS OF REMOTE SENSING:** (**08 Hours**)
  Basics of Arial 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:** (**08 Hours**)
  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 Hours**)
  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:** (**08 Hours**)
  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 Hours**)
  Concept, Components of GPS, GPS setup, Accessories, Segments-satellites & receivers, Case studies of GPS applications.

- **INTEGRATED APPLICATIONS:** (**03 Hours**)
  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.

- **INTRODUCTION TO SOFTWARE (QGIS/ARCHGIS)** (**04 Hours**)
  Introduction to the software and its interface, setting up coordinates, Georefrenceing, Basic drafting tools, Filling up attributes, Plotting of maps etc.

(Total Lectures: 45 Hours)

3. References

1. Lo C.P. & Yeung A.K.W. (2006), Concepts and Techniques of Geographic Information Systems, 2nd ed, Prentice Hall of India, New Delhi.
2. Reddy A. (2008), Remote Sensing and Geographical Information Systems, B.S. Publications, Hyderabad
3. Clarke, K.,(2001) Getting Started with Geographic Information Systems, Prentice Hall, New Jersy.
4. DeMers M.N. (2008), Fundamentals of Geographic information Systems, 4th ed, John Wiley & Sons, New York.
5. Kennedy M. (2002), The Global Positioning System & GIS: An Introduction, 2nd ed, Ann Arbor Press,

   Krista L. (2012), 'The Insider's Guide to Technical Writing', Ingram short title

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	0	1	0	1
CO2	1	1	2	2	1	2
CO3	3	2	2	3	2	2
CO4	3	2	3	3	2	3
CO5	3	3	3	3	2	3

CORE ELECTIVE – 2

CEUP122: SUSTAINABLE BUILDING PLANNING

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand housing typologies in the context of different climatic conditions
CO2	Assess the environmental impact on buildings by applying sustainable building techniques.
CO3	Review sustainable building planning policies, implementation, and innovative building materials for low-cost housing
CO4	Apply green building concept and principles of Vernacular architecture
CO5	Manage resources and asses building performance

2. Syllabus

- **SUSTAINABLE DEVELOPMENT AND PLANNING:** (**06 Hours**)

  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:** (**14 Hours**)

  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:** (**06 Hours**)

  Vernacular Architecture; Urban climate and effect of built environment, Impact of urbanization on sustainability, growth and issues related to sustainability

- **GREEN BUILDINGS:** (**10 Hours**)

  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:** (**09 Hours**)

  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.

(Total Lectures: 45 Hours)

3. References

1. Wheeler S. M. (2004), Planning for sustainability: creating livable, equitable and ecological communities, 2nd ed, Routledge, Taylor and Francis group, New York.

2. Maiellaro N. (2001), Towards sustainable building, Kluwer academic publishers, Netherlands,

3. "Sustainable building design manual: Sustainable building design practices" by The Energy and Resources Institute, New Delhi.

4. Takahiko Hasegawa T. (2003), Environmentally sustainable buildings: challenges and policies, Paris: Organisation for Economic Co-operation and Development, 2003.

5. Glavinich T.E., Contractor's Guide to Green Building Construction: Management, Project Delivery, Documentation, and Risk Reduction, Wiley; 2008

Lo C.P. & Yeung A.K.W. (2006), Concepts and Techniques of Geographic Information Systems, 2nd ed, Prentice Hall of India, New Delhi.

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	0	2	3	1
CO2	2	3	3	3	3	3
CO3	2	2	2	3	3	2
CO4	3	2	3	3	2	3
CO5	3	1	3	3	2	3

CORE ELECTIVE – 2

CETP220: SOFT COMPUTING TECHNIQUES

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Appraise characteristics of real-world problem and select appropriate soft computing technique.
CO2	To solve the optimization problems using the genetic algorithm.
CO3	Identify vagueness in data and formulate appropriate fuzzy model.
CO4	Calibrate ANN model by adopting appropriate activation function, learning rule and training algorithm.
CO5	Formulate FL - ANN hybrid model for the given real-world problem.

2. Syllabus

- **GENETIC ALGORITHMS** **(12 Hours)**

  Goals of optimization - Comparison with traditional methods - Schemata – Terminology in GA – Strings, Structure, Parameter string - Data Structures – Operators - Coding fitness function – Algorithm - Applications.

- **FUZZY LOGIC** **(12 Hours)**

  Concepts of uncertainty and imprecision – Sets - Concepts, properties and operations on Classical sets & Fuzzy Sets - Classical & Fuzzy Relations - Membership Functions - Fuzzy Logic – Fuzzification - Fuzzy Rule based Systems – Fuzzy propositions - Applications.

- **ARTIFICIAL NEURAL NETWORKS** **(12 Hours)**

  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 - Least mean square algorithm, Back propagation algorithm Applications.

- **HYBRID SYSTEMS** **(09 Hours)**

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

(Total Lectures: 45 Hours)

3. References

1. Timothy J.Ross, Fuzzy Logic with Engineering Applicatios, McGraw-Hill
2. Simon Haykin, Neural Netwroks, PrenticeHall
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.

4. CO-PO-PSO Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	1	0	3	3	3	3
CO2	3	1	3	3	3	3
CO3	2	0	3	2	3	3
CO4	3	0	3	3	3	3
CO5	2	0	3	3	3	3

SEMESTER – II

CEUP201 URBAN INFRASTRUCTURE PLANNING & MANAGEMENT

L	T	P	C
3	1	0	4

1. Course Outcomes (COs)

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

CO1	Understand Urban Infrastructure fundamentals with practical application.
CO2	Review different norms and guidelines of municipal infrastructure.
CO3	Adobe the most suitable management techniques for the better maintenance of infrastructure in future growth.
CO4	Identify different shortcomings and challenges in the current practices.
CO5	Explore modern techniques and technology in place of conventional methods.

2. Syllabus

- **URBAN INFRASTRUCTURE PLANNING (05 Hours)**

  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 (06 Hours)**

  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 (06 Hours)**

  City & Household Network Scenario, Norms, National Water Policy, Water Rights: excess and underutilization of water, role of community in water provision, water harvesting, privatization of water supply and its implications.

- **SEWERAGE NETWORK (06 Hours)**

  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 (06 Hours)**

  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 (06 Hours)**

  Planning for electrification, Current scenario, services and space standards of Transformers space standards for electricity networks, Space station Location, Street lighting requirements, Communication network requirement.

- **SOCIAL INFRASTRUCTURE (10 Hours)**

  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.

(Total Lectures: 45 Hours)

3. References

1. National Institute of Urban Affairs (2005). Status of water supply, sanitation, and solid waste management in the urban area.
2. Yigitcanlar, T. (2010). Sustainable urban and regional infrastructure development: technologies, application, and management. IGI Global publishing company.
3. CPHEEO (2013). CPHEEO Manual on Sewerage and Sewage Treatment Systems.
4. CPHEEO (2016).CPHEEO Manual on Municipal Solid Waste Management.
5. CPHEEO (2019).CPHEEO Manual on Storm Water Drainage Systems.

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	0	1	1	1
CO2	1	1	2	1	3	1
CO3	3	1	3	2	2	3
CO4	1	2	1	2	3	2
CO5	3	3	3	3	3	3

CEUP202 URBAN GOVERNANCE AND LEGISLATION

L	T	P	C
3	1	0	4

1. Course Outcomes (COs)

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

CO1	Classify Indian System of urban governance, organization structure and planning legislation.
CO2	Understand finance systems of ULB's and role of state and central government.
CO3	Review of constitutional amendments and their relevance to planning and plan implementation.
CO4	Identify ULB's role, functions for citizens including public administration.
CO5	Formulate and design scenarios for ULB's in context of governance, finance and administration.

2. Syllabus

- **OVERVIEW OF URBAN GOVERNANCE (06 Hours)**
  Definition, concepts, components, government and governance, hierarchy and structure, forms of governance, Indian Constitution, Planning Legislation-Acts and Amendments.

- **INDIAN SYSTEM OF URBAN GOVERNMENT (10 Hours)**
  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 (15 Hours)**
  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 (14 Hours)**
  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.

(Total Lectures: 45 Hours)

3. References

1. Mathur, O.P. and George, P. (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. Jayal, N.G. Prakash A. and Sharma P.K. (2006). Local Governance in India: Decentralization and Beyond. Oxford University Press, New Delhi.
4. Baud, I.S.A., and Wit, J. de. (2008). New Forms of Urban Governance in India: Shifts, Models, Networks and Contestations Sage, New Delhi.
5. Sharma A.K. (2004). Bureaucracy and Decentralisation, Mittal, New Delhi.

4. **CO-PO-PSO_Mapping**

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	1	0	1	2	1
CO2	0	0	1	1	2	1
CO3	1	1	2	2	2	1
CO4	2	0	2	2	3	2
CO5	3	3	3	3	3	3

CEUP203 PLANNING STUDIO - III

L	T	P	C
0	0	4	2

1. Course Outcomes (COs)

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

CO1	Adopt various land management and aggregation models.
CO2	Plan and design Town Planning Schemes as per relevant act.
CO3	Formulate financial mechanism for the designed town planning scheme.
CO4	Provide urban infrastructure in the designed town planning scheme.
CO5	Asses of impact on Environment due to development projects.

2. Syllabus

- **OVERVIEW**

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

  a) Preparation of T.P. Scheme
  b) Preparation of Urban Infrastructures for different Micro and Macro level plans

- **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.

(Total Contact Hours: 60 Hours)

3. CO-PO-PSO Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	1	0	2	2	1	2
CO2	2	3	2	3	2	2
CO3	1	3	3	1	3	1
CO4	2	2	3	1	2	3
CO5	3	3	2	3	3	3

CEUP204 PLANNING STUDIO - IV

L	T	P	C
0	0	4	2

1. Course Outcomes (COs)

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

CO1	Calculate demand and supply of the required infrastructure on city level.
CO2	Prepare planning proposal for urban infrastructure with respect to Smart Cities/Future Cities.
CO3	Recommend different urban infrastructure management techniques.
CO4	Formulate financial mechanism considering implementation, operation and maintenance cost.
CO5	Identify the process of environmental impact assessment for the prepared proposal.

2. Syllabus

- **OVERVIEW**

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

  a) Sustainable Environmental Planning
  b) 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.

(Total Contact Hours: 60 Hours)

3. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	1	3	1	2	2	1
CO2	3	3	3	3	3	3
CO3	3	2	3	3	3	3
CO4	2	3	3	2	3	2
CO5	2	2	1	1	1	1

CORE ELECTIVE – 3

CEUP210 SUSTAINABLE URBAN PLANNING PRACTICES

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Explore Land management models prevailing across the country.
CO2	Predict population using different statistical methods and analyse population growth patterns.
CO3	ReviewTown Planning Acts, guidelines and process of preparation of Development plan and Town planning scheme.
CO4	Identify different Urban environment issues and climate change challenges.
CO5	Perceived knowledge of various Environmental Legislations and policies.

2. Syllabus

- **URBAN LAND MANAGEMENT** **(06 Hours)**

  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** **(04 Hours)**

  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 SCHEME** **(08 Hours)**

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

- **SUSTAINABLE PLANNING TECHNIQUES** **(14 Hours)**

  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.

- **ENVIRONMENT LEGISLATIONS** **(08 Hours)**

  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.

- **POLLUTION AND CLIMATE CHANGE** **(05 Hours)**

  Definition, causes and its effects, Impact on the urban environment, Mitigation strategies.

(Total Lectures: 45Hours)

3. References

1. Dale, A., Dushenko, W. and Robinson, P.,"Urban Sustainability: Reconnecting Space and Place" Toronto: University of Toronto Press, 2012
2. Sen, J., "Sustainable Urban Planning", India: The Energy and Resource Institute (TERI), 2012
3. Tariq, R.,"Sustainable Urbanization and urban Development", New Delhi: New Academic Publishers, 2008
4. Cooper, R., "Designing Sustainable Cities", New Delhi: Wiley- Blackwell Publisher, 2009
5. Dr.Dhameja, S., "Environmental Engineering and Management" New Delhi: S. K. Kataria& Sons, 2007

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	0	1	2	1
CO2	2	2	3	2	1	1
CO3	1	1	3	1	3	1
CO4	2	2	1	2	3	2
CO5	1	2	3	2	3	2

CORE ELECTIVE – 3

CEUP211: PLANNING LEGISLATION

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Describe different legislations related to urban planning and policy.
CO2	Demonstrate the legal procedures for preparation and implementation of Regional Plans, Master Plans and Town Planning Schemes.
CO3	Illustrate the regulations for planning.
CO4	Explain the role of politics in planning
CO5	Review of constitutional amendments and their relevance to planning and plan implementation

2. Syllabus

- **PLANNING LEGISLATION AND POLICY FORMULATION AND APPRAISAL: (12 Hours)**

  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: (08 Hours)**

  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: (08 Hours)**

  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: (07 Hours)**

  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: (06 Hours)**

  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: (04 Hours)**

  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.

(Total Lectures: 45 Hours)

3. References

1. URDPFI Guidelines, Ministry of Housing and Urban Dev., Govt. Of India. 2015
2. The Gujarat Town Planning and Urban Development Act, 1976
3. Comprehensive General Development Control Regulations – 2017. Govt. of Gujarat
4. Handbook of Environmental Laws, Vol. I and II, Enviro-media Publication, Karad, Maharashtra.
5. Maharashtra Act No. IV of 1975: The Bombay Meetropolitan Region Development Authority Act, 1974, Govt. of Maharashtra, Law and Judiciary Deptt., published by the Director General, Govt. Printing, Stationery and Publications, Maharashtra State, Bombay 400004

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	1	1	1	0
CO2	2	2	2	1	3	1
CO3	3	0	3	2	3	1
CO4	1	0	0	2	1	2
CO5	2	2	1	2	2	2

CORE ELECTIVE – 3

CEUP212: TOURISM PLANNING & DEVELOPMENT

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the concept of tourism planning and development in urban and regional scale
CO2	Assess the impact of sustainable tourism development on natural environment
CO3	Promote tourism for economic development of a country.
CO4	Practice modern techniques of tourism planning and development.
CO5	Develop Revenue generation techniques through Tourism planning

2. Syllabus

- **INTRODUCTION TO TOURISM: (10 Hours)**

  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: (15 Hours)**

  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: (10 Hours)**

  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: (10 Hours)**

  Tourism policies at various levels. Case studies: Indian Site, 7 Projects for Gujarat Tourism.

(Total Lectures: 45 Hours)

3. References

1. Hall, C. (2008). Tourism Planning: Policies, Process & relationship. Prentice Hall.
2. Gunn, C. (2009). Tourism Planning: Basics, Concepts, cases. France & Taylor Publication
3. Goeldner, C. and Ritchie J. (2009). Tourism: Principles, Practices, Philosophies. John Wiley & Sons
4. Planning Commission (2012). Working Group Report on Tourism (2012-2017). Govt. of India
5. Ministry of Tourism. (2011). Strategic Action Plan for Tourism in India. Govt. of India. Ministry of Tourism.

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	0	1	0	0
CO2	2	3	2	2	3	2
CO3	3	1	3	2	2	2
CO4	3	1	3	3	2	3
CO5	2	3	2	3	3	3

CORE ELECTIVE – 3

CE213 URBAN ECONOMICS AND SOCIOLOGY

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the basics of urban economics and finance
CO2	Analyzing the public finance and project development cost
CO3	Predicting the economic growth and developing quality of life
CO4	Comprehending urban sociology and cultural aspects
CO5	Developing Socio-cultural aspects of community

2. Syllabus

- **URBAN ECONOMICS BASICS AND CONCEPTS: (10 Hours)**

  Introduction to the principles of economics. Importance of economics in Urban Development. Concepts of demand, supply, elasticity and consumer markets, revenue, Economies of scale, economic and social costs, production and factor market; price determination, cost-benefit analysis, public sector pricing; Determinants of national income, consumption, investment, inflation, unemployment, capital budgeting, risk and uncertainty, long-term investment planning. National plans appraisal and economic development in relation to urban development.

- **PUBLIC FINANCE: (08 Hours)**

  Introduction to the principles of public finance. Project development cost. land values, Economic base of cities, Industrial and other economic activity's location, Policies and Urban Development.

- **ECONOMIC GROWTH,DEVELOPMENT AND QUALITY OF LIFE: (07 Hours)**

  Human development index, poverty and income distribution, employment and livelihood; balanced versus unbalanced growth, public sector dominance; changing economic policies, implications on land. Relevant case studies.

- **URBAN SOCIOLOGY BASICS AND CONCEPTS: (12 Hours)**

  Socio-cultural profile of society and urban transformation; Tradition and modernity in the context of urban and rural settlements; Issues related to caste, age, sex, gender and marginalized groups; Displacement, resettlement and rehabilitation. Social problems of slums and Urban poor, 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: (08 Hours)**

  Growth patterns of city and neighborhood communities; Social planning and policy, community participation; Marginalization and inclusive planning, National Policy. Relevant case studies.

(Total Lectures: 45 Hours)

3. References

1. O'sullivan, A. (2019). Urban Economics. New York: McGraw Hill Education.
2. Jones, C. (2021). Urban Economy: Real Estate Economy and Public Policy. London: Tailor & Francis Group.
3. Sondge, T. (2012). Urban Sociology in India. India: ChandralokPrakashan

4. Abrahamson, M. (2013). Urban Sociology: A Global Introduction. UK: Cambridge University Press.
5. Moss L. (2001), 'City and Country: An Interdisciplinary Collection', Wiley Blackwell

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	0	2	1	1
CO2	3	2	1	2	2	2
CO3	2	3	2	2	3	2
CO4	2	1	1	3	2	2
CO5	3	2	3	3	3	3

CORE ELECTIVE – 3

CEUP214 CLIMATE CHANGE AND HUMAN SETTLEMENT

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand climate change
CO2	Discussing the Mitigation strategies in various context
CO3	Reviewing policies and acts all over the world and in India
CO4	Plan climate responsive proposals for mitigating climate change
CO5	Evaluate the funding provided to support adaptation

2. Syllabus

- **UNDERSTANDING CLIMATE CHANGE: (08 Hours)**

  Greenhouse gases, Anthropogenic causes, Carbon Cycle, Global Warming, Urban Heat Islands International and national Efforts, UNFCC, Conference of Parties, Kyoto Protocol, IPCC, Intended Nationally Determined Contributions (INDC), Global Environment Facility (GFC), Clean Development Mechanism, Role of Human Settlements in climate change, Contribution to GHGs, Sectorial contributions, Sensitivity and Vulnerability of different sectors

- **CLIMATE CHANGE: MITIGATION AND ADAPTATION LINKAGES: (08 Hours)**

  Mitigation and adaptation strategies and linkages, Low Carbon Settlements, Mitigation and adaptation options in cities of developed and developing Nations, Principles for planning of mitigation and adaptation, Urban form and climate change.

- **USE OF SCENARIOS FOR CLIMATE CHANGE ADAPTATION: (06 Hours)**

  Use of future scenarios, Climate change and socio-economic scenarios ,Barriers to use of scenarios and appropriate interventions.

- **CLIMATE CHANGE AND COASTAL SETTLEMENTS: (06 Hours)**

  Climate change and human settlements in low elevation coastal zones, Estimating population and human settlement patterns in low elevation coastal zones, Adaptation to rising sea levels and consequences.

- **PLANNING FOR GREEN INFRASTRUCTURE: (06 Hours)**

  Role of green infrastructure in adapting climate change, Quantification of environmental functions of green infrastructure, Climate adaptation strategies and programmes of green infrastructure.

- **CLIMATE CHANGE MITIGATION AND ADAPTATION IN INDIA: (05 Hours)**

  India's urban transformation and climate change risk exposure, National Action Plan on Climate Change, Sustainable Habitat Mission, Gaps, Mitigation and Adaptation Agenda for Indian Cities Module

- **FUNDING PROVISIONS TO SUPPORT ADAPTATION: (06 Hours)**

  Funding for adaptation under UNFCC, Role of Official Development Assistance (ODA) in funding adaptation, Access to adaptation finance by urban stakeholders

(Total Lectures: 45 Hours)

3. References

1. Sabrina. D. (2020), 'Cities Leading Climate Action: Urban Policy and Planning', Routledge
2. Vivek.S. (2019), 'Urban Adaptation to Climate Change: The Role of Urban Form in Mediating Rising Temperature', Springer
3. Nadja. K. (2018), 'Nature-Based Solutions to Climate Change Adaptation in Urban Area', Springer
4. Diane.A. (2016), 'Responding to Climate Change in Asian Cities: Governance for a more resilient urban future', Routledge
5. Beth.S. (2019), 'Regenerative Urban Development, Climate Change and the common good', Routledge

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	0	0	1	0
CO2	1	0	2	1	2	2
CO3	1	1	1	2	3	1
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3

CEUP215 URBAN INFRASTRUCTURE PLANNING & MANAGEMENT

L	T	P	C
3	1	0	4

1. Course Outcomes (COs)

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

CO1	Understand Urban Infrastructure fundamentals with practical application.
CO2	Review different norms and guidelines of municipal infrastructure.
CO3	Adobe the most suitable management techniques for the better maintenance of infrastructure in future growth.
CO4	Identify different shortcomings and challenges in the current practices.
CO5	Explore modern techniques and technology in place of conventional methods.

2. Syllabus

- **URBAN INFRASTRUCTURE PLANNING (05 Hours)**

  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 (06 Hours)**

  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 (06 Hours)**

  City & Household Network Scenario, Norms, National Water Policy, Water Rights: excess and underutilization of water, role of community in water provision, water harvesting, privatization of water supply and its implications.

- **SEWERAGE NETWORK (06 Hours)**

  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 (06 Hours)**

  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 (06 Hours)**

  Planning for electrification, Current scenario, services and space standards of Transformers space standards for electricity networks, Space station Location, Street lighting requirements, Communication network requirement.

- **SOCIAL INFRASTRUCTURE (10 Hours)**

  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.

(Total Lectures: 45 Hours)

3. References

1. National Institute of Urban Affairs (2005). Status of water supply, sanitation, and solid waste management in the urban area.
2. Yigitcanlar, T. (2010). Sustainable urban and regional infrastructure development: technologies, application, and management. IGI Global publishing company.
3. CPHEEO (2013). CPHEEO Manual on Sewerage and Sewage Treatment Systems.
4. CPHEEO (2016).CPHEEO Manual on Municipal Solid Waste Management.
5. CPHEEO (2019).CPHEEO Manual on Storm Water Drainage Systems.

4. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	0	1	1	1
CO2	1	1	2	1	3	1
CO3	3	1	3	2	2	3
CO4	1	2	1	2	3	2
CO5	3	3	3	3	3	3

CORE ELECTIVE – 4

CEUP220 REGIONAL PLANNING

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the concept of regional planning &development.
CO2	Recognize institutions and organization setup of regional authorities.
CO3	Identify the Requirement of resources for regional development.
CO4	Apply various theories for balanced regional development.
CO5	Prepare proposal on regional plan.

5. Syllabus

- **REGION AND REGIONAL DYNAMICS (10 Hours)**

  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.

- **REGIONS IN INDIA AND ITS PLANNING (10 Hours)**

  Region 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 Sectorial 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.

- **CORE AND PERIPHERY IN A REGION IN INDIAN CONTEXT (08 Hours)**

  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.

- **ELEMENTS OF MICRO AND MACRO ECONOMICS (08 Hours)**

  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.

- **TECHNIQUES AND GROWTH MODELS OF REGIONAL ANALYSIS (09 Hours)**

  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 Loseh.

(Total Lectures: 45 Hours)

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6. References

1. Sundaram K. "Urban and Regional Planning in India", New Delhi: Vikas Publishers
2. Chaudhuri, Jayasri R. "An Introduction to Development and Regional Planning", Kolkata: Orient Longman Ltd, 2001
3. Jiwan J. "Regional Development and Planning", Rawat Publications, 2021
4. Allen. N. "Regional Development and Planning for the 21st Century: New Priorities, New Philosophies", Routledge
5. Kanan. C. "Regional Planning: Concept Theory and Practice", Concept Publishing Company, 2017

4. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	1	1	0	2	1	0
CO2	0	1	0	1	0	0
CO3	2	2	1	3	1	3
CO4	2	1	2	3	2	2
CO5	3	3	3	3	3	3

CORE ELECTIVE – 4

CEUP221 REAL ESTATE MANAGEMENT

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the concept and principles of real estate sector.
CO2	Identify the role of urban building industry.
CO3	Review urban land policy and its direct government action, legal and physical controls.
CO4	Explain the role of real estate in Urban growth and land dynamics.
CO5	Identify legal aspects of real estate development.

2. Syllabus

- **REAL ESTATE** **(15 Hours)**

  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** **(16 Hours)**

  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** **(14 Hours)**

  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.

(Total Lectures: 45 Hours)

3. References

1. Lean W., “Aspects of Land use Planning”, New Jersey: Gonthic Publications, 1982
2. Paul B.N., “Urban Land Economics”, London: The McMillan Press, 1997
3. Singh B., “Urban Infrastructure and Real Estate Management”, Surendra Publications, 2011
4. Barry Haynes, “Corporate Real Estate Asset Managements: Strategy and Implementation”, 2017
5. John. R., “Urban Planning and Real Estate Development”, 2003

4. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	0	0	0	1	0	0
CO2	1	0	1	2	1	1
CO3	1	2	2	2	3	2
CO4	2	1	1	3	2	1
CO5	2	2	2	2	2	2

CORE ELECTIVE – 4

CEUP222 URBAN DESIGN & LANDSCAPE DEVELOPMENT

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the components of Urban Design.
CO2	Understand the concept of Landscape Planning in urban context.
CO3	Implement sustainable and balanced urban planning with beauty, convenience and health with the use of dynamic architectural techniques.
CO4	Design using strategies like concept planning, designing, development; zoning by function to balance urban area.
CO5	Develop Revenue generation techniques.

2. Syllabus

- **SCOPE AND OBJECTIVES OF URBAN DESIGN (04 Hours)**

  Its relationwith 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 (04 Hours)**

  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 (06 Hours)**

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

- **DEVELOPMENT CONTROL GUIDELINES (06 Hours)**

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

- **OBJECTIVES AND SCOPE OF LANDSCAPE PLANNING (06 Hours)**

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

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

- **OUTDOOR RECREATION AND TOURISM (02 Hours)**

  Planning and design issues.

- **LANDSCAPE PLANNING (08 Hours)**

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

- **OPEN SPACE SYSTEM** **(06 Hours)**

  Concept for opens 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** **(03 Hours)**

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

(Total Lectures: 45 Hours)

3.References

1. Paul, Spreiregen D., "Urban Design: The Architecture of Town and Cities", New York: McGraw Hill Book Company,2020
2. Shimizu H. and Murayama A., "Clinical Environmental Approaches in Landscape Planning", Urban and Landscape Perspectives, 2014
3. John.F., "Urban Landscape Design",Teneues Media Gmbh& Co, 2008
4. Grazia.C, "Human Smart Cities: Rethinking the Interplay between Design and Planning", Springer, 2018
5. Nigel D. "The Dynamic Landscape: Design, Ecology and Management of Naturalistic Urban Planting", Taylor & Francis

7. CO-PO-PSO_Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	1	0	1	1	0	0
CO2	1	0	0	2	1	1
CO3	2	1	3	2	3	2
CO4	3	3	3	3	3	3
CO5	3	3	3	2	2	2

CORE ELECTIVE – 4

CEUP223 PLANNING AND DEVELOPMENT OF INFORMAL SECTOR

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understand the urbanization and urban poor
CO2	Reviewing the Policies and acts related to the development of poor
CO3	Predicting the growth of informal and formal sectors and its trends
CO4	Analyzing the role of migration and economic growth
CO5	Developing economies and housing opportunities for the informal sector

2. Syllabus

- **URBANIZATION AND URBAN POVERTY: (08 Hours)**

  Formal and Informal economy challenges and opportunities, Economic linkages, interdependency and Economic flows of formal and informal sector, forward and backward linkages, Role of informal economy and informal sector in overall economic development, Socio-cultural and environment perspectives.

- **HOUSING FOR SLUMS: (12 Hours)**

  Housing policies for the urban poor, Housing demand and assessment, Role of migration, social housing projects and best practices, case studies and examples.

- **REVIEW OF POLICIES, ACTS AND PROGRAMMES: (06 Hours)**

  Review national and international scenario, innovation in the informal sector, survey techniques for socio-economic analysis and spatial analysis, measurement and assessment with projection of informal sector, Plan formulation and integration with spatial plans.

- **PLANNING FOR URBAN VILLAGE: (11 Hours)**

  Character of urban village, Problem and issue identification, Policies and guidelines for development and redevelopment, financial models and Governance structure

- **PLANNING OF POLICIES AND STATERGIES: (08 Hours)**

  Preparation of policies and strategies for informal setting for development, redevelopment, renewal or rejuvenation

(Total Lectures: 45 Hours)

3. References

1. Nurul, A. (2010). The Informal Sector in Asia. VDM Verlag.
2. Wiliams, C. and schneidar F. (2016). Measuring the Global Shadow Economy: The Prevalence of Informal Work and Labour. Edward Elgar Publisher
3. Mukhopadhyay I. (2022) Employment in the Informal Sector in India. Singapore: Springer
4. Barnes T. (2018). Informa Labour in India: Three Cities, Three Journeys. Routledge.
5. Mohsen. A (2021), 'Resilience of Imformal Areas in Megacities- Magnitude, Challenges and Policies: Strategic Environment' Springer Nature Switzerland

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	0	2	1	1
CO2	1	1	1	2	3	2
CO3	2	1	2	2	2	2
CO4	2	1	1	3	3	3
CO5	3	2	3	3	3	3

CORE ELECTIVE – 4

CEUP224 URBAN DYNAMICS

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Understanding the urbanization trends
CO2	Comprehending the theories of growth
CO3	Analyzing the reasons for development and underdevelopment
CO4	Derive connection between the capital and development
CO5	Practice the application of theories

2. Syllabus

- **URBAN AND URBANIZATION: (10 Hours)**

  Definitions of Urban, urbanization, drivers of urban growth, problems and prospects of urbanization, urbanization in India, systems thinking, system, system dynamics, urban system, urban dynamics, functions of urban system, introduction to system dynamics modelling, modelling urban problems – based on current issues and field studies.

- **THEORIES OF DEVELOPMENT AND UNDERDEVELOPMENT: (15 Hours)**

  Concepts of development and growth, Indicators of development, Ingredients of development - Economic base of cities and regions, Basic concepts of economic resources - Basic concepts in macro-economic and economic analysis - Economics of scale and external economics. Theories of development - Role of cities in regional and national development –Friedman and Myrdal – Top-down and bottom-up approaches and concepts of integrated regional development - classical and neo-classical theories of urban and regional development Theories of under development - Dependency, imperialism – World system approach – hierarchical placements and positioning of regions and spatial forms Dichotomy of North-South, Rich-Poor -Third world urbanization – Metropolitan Dominance and hegemony – patterns of urban and regional development and disparities

- **CAPITAL, CITY AND DEVELOPMENT: (10 Hours)**

  Critical links between capital and cities –feudal, industrial and financial capital -Theoretical Foundations - Historical, Sociological and Spatial Roots -Perspectives on Cities

- **DIFFERENT STATERGIES AND APPLICATION OF THEORIES: (10 Hours)**

  Different strategies and theories for compact cities, shrinking cities, urban sprawl, regional plan formulation for managing dynamics, application of various tools and techniques

(Total Lectures: 45 Hours)

3. References

1. Forrester J. (1969). Urban Dynamics. Pegasus Communications.
2. Siddharatha K. and Mukharjee S. (2019). Cities Urbanization and Urban Systems. Delhi: Kitab Mahal
3. Bertuglia C. (2011). Urban Dynamics: Designing an Integrated Model. Routledge
4. Shaw, S. (2021). Urban Human Dynamics. Springer Journal
5. Gregory. F (2022), 'Urbanormativity: Reality, Representation, and Everyday Life' Lexington

4. CO-PO-PSO Mapping

	PO1	**PO2**	**PO3**	**PSO1**	**PSO2**	**PSO3**
CO1	0	0	1	2	1	0
CO2	0	0	1	1	2	0
CO3	2	1	2	2	2	1
CO4	3	2	1	2	3	3
CO5	3	2	3	2	3	2

INSTITUTE ELECTIVE – 1

CECS230 AI/ML BASED APPLICATIONS IN CIVIL ENGINEERING

L	T	P	C
3	0	0	3

1. Course Outcomes (COs)

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

CO1	Comprehend the basic principles of artificial intelligence (AI) and machine learning (ML) algorithms.
CO2	Understanding Data collection & management tools & techniques for AI/ML application to Civil Engineering.
CO3	Derive the need and benefits of using AI/ML algorithms for developing applications in Civil Engineering using big-data analysis.
CO4	Solve the real-life problems in Civil Engineering using real-time data collection and big-data analysis involving AI/ML tools.
CO5	Evaluate the performance of different AI/ML algorithms towards a given application in civil engineering.

2. Syllabus

- **INTRODUCTION TO MACHINE LEARNING** **(8 hours)**

Machine Learning Basics: Data Collection, Data Management, Big data, taxonomy of machine learning algorithms, **Supervised Learning:** Classification – Bayesian Classifier, K-nearest Neighbours, Regression- Linear Regression, Multivariate Regression, Logistic regression. Support Vector Machine (SVM) Algorithm. **Unsupervised Learning:** Clustering- K-means clustering algorithm and Hierarchical clustering algorithm. **Reinforcement Learning:** Q-Learning algorithm.

- **DATA COLLECTION APPARATUSES** **(8 hours)**

Type of data sources, Types of data, Types of sensors, Edge-devices, Introduction to microcontrollers, data communication protocols, Cloud storage and cloud computing, Local server setup, Cloud server setup, Introduction to Python, Introduction to Django server, Database setup.

- **APPLICATIONS IN CIVIL ENGINEERING** **(15 hours)**

Intelligent Transportation systems, smart mobility, shared mobility, Mobility as a Service (MaaS), Real-time data monitoring, Structural health monitoring, Fire resistance evaluation of structures, automation in water resource management, Water quality monitoring, water distribution system monitoring, air and noise pollution monitoring, Rainfall-runoff modelling, Climate change monitoring, Soil liquefaction, Forecasting foundation related parameters, Building occupancy modelling, Building information modelling, Energy demand prediction, Predictive maintenance of equipment, roads and buildings

- **APPLICATION PART I: DATA COLLECTION AND MANAGEMENT** **(7 hours)**

Image processing for real time applications in Civil Engineering**,** Description of available database across specialisations**,** Selection of sensors and microcontroller, Integration of sensors with Edge-device, Programming of Edge-devices, Programming of server in Django framework, Collection of sensor data and storing to Database, Cloud computing

- **APPLICATION PART II: BIG DATA ANALYSIS** **(7 hours)**

Selecting the appropriate ML algorithm for analysis, Data Processing, Analysing the importance of each variable in decision making, and Analysis of processed data.

(Total Lecture : 45 Hours)

3. References:

1. Manaranjan Pradhan, U Dinesh Kumar "Machine Learning using Python", Wiley.
2. Deka P C,A "Primer on Machine Learning Applications in Civil Engineering" Taylor & Francis.
3. Charles R. Farrar, Structural Health Monitoring: A Machine Learning Perspective, Keith Worden, Wiley.
4. John Soldatos "Building Blocks for IoT Analytics", Athens Information Technology, Greece, River Publishers.
5. Samuli Natri."Django - The Easy Way" (2nd Edition),
6. Adrian Holovaty, Jacob Kaplan-Moss "The Django Book (Release 2.0)" 2013.
7. Benjamin J. R., Cornell C. A., "Probability Statistics and Decision for Civil Engineers", McGraw-Hill, 1970.
8. Simon P. Washington, Matthew G. Karlaftis, Fred, Mannering L., "Statistical and Econometric Methods for Transportation Data Analysis", CRC Press, Second Edition, 2010.
9. Richard A. Johnson, Dean W. Wichern, "Applied Multivariate Statistical Analysis", Prentice Hall, 1992.

4. Other Material:

1. Arduino-ESP32 (Release 2.0.2), Espressif, 2022.

5. CO-PO-PSO Mapping

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

Note: 1: Slightly 2: Moderately 3: Substantially

SEMESTER – III

CEUP301 SEMINAR

L	T	P	C
0	0	2	1

1. Course Outcomes (COs)

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

CO1	Understand the process of literature survey.
CO2	Relate research areas in the field of Urban Planning.
CO3	Gather a database of inventory available in various topic.
CO4	Review and summarise the existing literature on selected topic.
CO5	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.

2. Seminar Work

a. The student shall finalize 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.

3. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	0	0	1	1	0	0
CO2	1	2	1	2	1	2
CO3	1	2	1	2	2	2
CO4	2	3	2	3	3	2
CO5	2	3	2	3	3	3

CEUP302 SUMMER TRAINING

L	T	P	C
0	0	0	2

1. Course Outcomes (COs)

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

CO1	Explore different possibility where urban planners can apply their knowledge.
CO2	Gain exposure of working in field with experts and team.
CO3	Solve practical problems with urban planning approaches.
CO4	Promote academic & industry networking.
CO5	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.

2. 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 setup 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 and present it before a panel on the scheduled date.

3. CO-PO-PSO Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	1	0	1	1	2	1
CO2	0	0	3	1	1	3
CO3	3	3	3	3	3	3
CO4	0	2	1	3	0	2
CO5	2	3	3	3	1	3

CEUP303 DISSERTATION PRELIMINARY

L	T	P	C
0	0	12	6

1. Course Outcomes (COs)

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

CO1	Explore current or upcoming issues and research areas in the relevant field of Urban Planning.
CO2	Identify the process & importance of Literature Survey in identifying research areas.
CO3	Review the literature to find out the need of the research areas and setup of objectives.
CO4	Develop the Methodology of research and prepare work schedule.
CO5	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.

2. 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.

3. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	3	0	1	2	3	2
CO2	0	1	2	1	2	0
CO3	2	3	2	2	3	1
CO4	3	3	3	2	2	0
CO5	3	3	3	3	3	2

CEUP304 DESIGN PORTFOLIO

L	T	P	C
0	0	8	4

1. Course Outcomes (COs)

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

CO1	Understand the process of evaluation and appraisal of Development Plans.
CO2	Identify land Use Plan and growth potential of the city.
CO3	Develop capabilities to assess the urban policy framework of the city
CO4	Prepare or Modify development Plan with reference to the Act and guidelines along with its report.
CO5	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. Dos and Don'ts in professional Bodies

2. 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 prepares 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.

3. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	0	0	1	1	1	1
CO2	1	0	1	2	2	2
CO3	3	1	2	2	3	3
CO4	3	3	3	3	3	3
CO5	3	3	3	3	3	3

SEMESTER – IV

CEUP401 DISSERTATION

L	T	P	C
0	0	24	12

1. Course Outcomes (COs)

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

CO1	Generate scope for original and independent study/research
CO2	Conceive ideas through the conduct of the research.
CO3	Asses the previous research and existing literature and data
CO4	Gain the ability & confidence to undertake field studies, data collection, analysis and presentation
CO5	Prepare proposal on the research area

2. Syllabus

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.

3. 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.

4. CO-PO-PSO_Mapping

	PO1	PO2	PO3	PSO1	PSO2	PSO3
CO1	3	0	1	2	3	2
CO2	0	1	2	1	2	0
CO3	2	3	2	2	3	1
CO4	3	3	3	2	2	0
CO5	3	3	3	3	3	2