Shri Rawatpura Sarkar University, Raipur, Chhattisgarh

Faculty of Engineering

Shri Rawatpura Sarkar University, Raipur

Examination Scheme & Syllabus

for

M.Tech.(Urban & Town Planning Engineering)

Semester-III

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the Session: 2022-23)

Shri Rawatpura Sarkar University, Raipur, Chhattisgarh

Faculty of Engineering

Two Years M.Tech. Programme

Scheme of Teaching and Examination

M.Tech. Third Semester Urban & Town Planning Engineering

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

(Effective from the Academic Year 2022-2023)

S.No.	Course Code	Course Title	Hours / Week			Credits	Maximum Marks			Sem End Exam Duration (Hrs)
			L	**T**	**P**		Continuous Evaluation	Sem End Exam	Total	
1	MENUP301T	Sustainable Urban Planning	3	1	-	4	30	70	100	3
2	MENUP302T	Elective-III	3	1	-	4	30	70	100	3
3	MENUP303P	Technical Paper Writing and Seminar	-	-	4	2	100	-	100	-
4	MENUP304P	Pre-dissertation (Literature Review/ Problem Formulation/ Synopsis	-	-	20	10	140	60	200	-
	Total Contact Hr Per Week: 32		**Total Credit: 20**				**Grand Total Marks:**		**500**	

L: Lecture T: Tutorial P: Practical

Elective-III

S.NO.	Course Title	Subject Code
1	Urban Design	MENUP302A
2	Landscape Planning	MENUP302B
3	Energy, Climate Change And Urban Development	MENUP302C

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Course Title	**Sustainable Urban Planning**				
Course Code	**MENUP301T**				
Course Credits	**L**	**T**	**P**	**TC**	
	3	**1**	**-**	**4**	
Prerequisites	**Urban Planning**				
Course Objectives	**This course will enable students to:** • Understand urbanization pattern and related resource management • Sensitize the significance of sustainability in the field of urban planning and understand its global significance • Expose various best practices in the field of sustainable urban planning				
Course Contents	**UNIT-I** **Overview Of Sustainable Development Concept** Definitions, concepts and parameters in sustainable development with **p**articular reference to Brundtland Commission and Agenda 21; Eco-City Approach; United Nations Framework Convention on Climate Change; Conference of Parties: Kyoto Protocol, Intergovernmental Panel on Climate Change, Indian Network of Climate Change Assessment etc. **UNIT-II** **Environment And Urbanisation** Environment and Development interface; Resource management, exploitation and conservation: Land, water, air and green spaces including forest cover; Impact of urbanisation on environment; Management of sensitive zones in urban areas – hills, coasts, water bodies and water fronts, wetlands etc. (including participatory approaches); Pollution and pollution control. **UNIT-III** **Energy And Urbanisation** Sources of energy, Energy supply and demand; Energy consumption in cities, Determinants of energy demand in cities; Energy planning and management; Energy efficient development. **UNIT-IV** **Climate Change And Urbanisation** Basics of Climate Change: Greenhouse gases, Anthropogenic causes, Carbon cycle, Global warming; Urban Heat Islands; Impacts of Climate Change: Climate as Forcing Variable, Location attributes, sensitivity and vulnerability of different Sectors, extreme events and their effects. Mitigation for climate change in urban areas (Case studies).				

	UNIT-V **Carrying Capacity, EIA And Sea** Carrying capacity based planning: Concept, Parameters and Indicator measures, Models and case studies in Urban development; Role of EIA in the planning and decision making process; Methods of EIA; advantages and limitations; Environmental Impact and Strategic Environmental Assessment for Urban Areas (through Case Studies); Ecological Footprint Analysis of Cities; Sustainable Lifestyle Assessment
Course Outcomes	**After the completion of course:** • Appreciate the significance of sustainability in urbanisation and its global impact Development capacity for resource optimisation. • Approach environment and natural ecosystems as potential rather than as constraint for urban development and thus integrate it to the planning process. • Appreciate and apply the new technologies related to sustainable urban development
Text Books	1. AITP Reader on Ecology & Resource Development, AITP 2. AITP Reading Material on Environmental Planning and Design, A K Maitra, , SPA Delhi 3. The Economics of Low Carbon Cities: A Mini-Stern Review for the Leeds City Region, The Centre for Low Carbon Futures Partnership, Andy Gouldson et al., University of Hull, University Of Leeds 4. Best Practices Environment, The Economist, Intelligence University Press 5. Evaluating Sustainable Development in the Built Environment,. Brandon P.S,, WILEY-BLACKWELL Pub., UK
Reference Books	1. Cities and Climate Change, OECD Publishing OECD (2010) 2. CPCB Guidelines for Bio-Technologies for Treatment of Wastes and Cleaner Technologies - Issue and Options 3. From Intelligent to Smart Cities, Deakin, Mark; Al Waer, Husam (Eds.) (2012) Routledge, Taylor & Francis, USA and Canada. 4. Population Growth and Environmental Degradation in India, Dr. D.A. Nagdeve 5. Global Green Standards: ISO 14000 and Sustainable Development, International Institute for Sustainable Development

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<table>
<tr><td>Course Title</td><td colspan="5">Urban Design</td></tr>
<tr><td>Course Code</td><td colspan="5">MENUP302T (Elective-III)</td></tr>
<tr><td rowspan="2">Course Credits</td><td>L</td><td>T</td><td>P</td><td>TC</td><td></td></tr>
<tr><td>3</td><td>1</td><td>-</td><td>4</td><td></td></tr>
<tr><td>Prerequisites</td><td colspan="5">Urban Planning</td></tr>
<tr><td>Course Objectives</td><td colspan="5">This course will enable students to:
Introduce the application of basic urban design
Give practice in the basic skills of urban design analysis
Give appreciation of both the process and product of the design of the built environment
Emphasize the need for planners to learn design, and designers to learn planning
Provide practice in visual, graphic and spatial literacy</td></tr>
<tr><td>Course Contents</td><td colspan="5">UNIT-I
Architecture – Urban planning and urban design relationships – Urban land use – Population density

UNIT-II
Transportation and their relationship to urban built form and environment – Consequences of chaotic and disordered development in urban areas and its impact on urban functions and aesthetics.

UNIT-III
Urban Image and Spaces – Image of the city and its elements by Kevin Lynch - Perception of urban environment – Understanding the organisation and articulation of spaces – The intended, informal and incidental activities taking place in the urban spaces

UNIT-IV
Elements of townscape – Urban design techniques – Hierarchy of spaces – Sequence and stimulus space – Scale time formation and dynamics – Order, forms, mass and space – Symbiotic relationships function and activity

UNIT-V
Identity, techniques of urban design – Inventories – visual survey – techniques of visual recording - Site analysis – space and regulation of urban activities
Urban renewal – The scope, need and the procedure- tools are available to implement urban design plans and policies.</td></tr>
<tr><td>Course Outcomes</td><td colspan="5">After the completion of course:
Explore the fundamentals of urban design as they relate to all scales of the built environment - including regions, cities, districts, neighborhoods, blocks and parcels - and will reinforce the basics of sound community planning.</td></tr>
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	• Students will learn how to analyze and measure design, how to apply its principles, how to understand the design process of creating new areas and the fundamentals of retrofitting existing ones. Students will answer the question of how a planner can impact the design of a city positively without designing buildings, and what tools are available to implement urban design plans and policies.
Text Books	1. A Pattern Language : Towns, Buildings, Construction, Christopher Alexander et.al., Oxford University Press, USA, 1977 2. Emerging Concepts in Urban Space Design, Geoffrey Braodbent Taylor & Francis, 1995. 3. The Concise Townscape, Gordon Cullen, Architectural Press, 1971 4. Urban Space academy Krier Rob, Edition, London, 1967. 5. The Urban Design Reader, Larice, M, and Macdonald, E. (Ed.), Routledge, 2012.
Reference Books	1. The Image of the City, Lynch Kevin, MIT Press, Cambridge Man 1960. 2. Introduction to Landscape Design, Moltoch J.L., VNR Publishing C., New York, 1991. 3. Urban Design the Architecture of Towns and Cities, Paul D. Spereigen, McGraw Hill Inc., 1965 4. The Urban Pattern, 6e, Simon Eisner, Arthur Gallion, Stanley Eisner, Wiley, 1993 5. Landscape Architecture – The Shaping of Man‟s Natural Environment”, Simonds J.O., McGraw Hill Books Co., New York, 1916.

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Course Title	**Landscape Planning**				
Course Code	**MENUP302T (Elective-III)**				
Course Credits	**L**	**T**	**P**	**TC**	
	3	**1**	**-**	**4**	
Prerequisites	**Planning**				
Course Objectives	**This course will enable students to:** • Understand the role of biodiversity and biodiversity values in planning of landscape. • Evolve an understanding of landscape planning in addressing the urban and rural context. • Expose various best practices practiced in the field of landscape planning.				
Course Contents	**UNIT-I** Landscape as an outcome of natural processes; principles and techniques of design with landform, water and vegetation; the role of surface materials, outdoor fittings and structures. **UNIT-II** Bio diversity- species, concepts and inventory, use of bio resources, valuing bio diversity, national and International policies and instruments, bio diversity planning. **UNIT-III** Introduction to landscape ecology, Management Concepts related to urban ecology and urban habitats such as urban forests, river banks, regional parks and agricultural green belts. The management of open space in urban areas: ecological, economic and administrative issues. **UNIT-IV** Urban Landscape - Characteristics and components of open space patterns in towns and cities (traditional and contemporary) basic types: streets, squares, plazas, gardens, Ghats and maidans, public parks at district, local and neighborhood levels; park systems **UNIT-V** Elements of Landscape Planning The rural landscape; characteristics, components and change related to agriculture, forestry and development. Landscape Assessment techniques; Basic quantitative methods of collecting, analyzing, projecting and presenting data for Landscape Planning. Landscape planning as a component of regional development proposals for industrial location (manufacturing and extractive); environmental conservation, tourism, etc.; landscape planning in the context of urban extensions and new towns.				

Course Outcomes	**After the completion of course:** • Appreciate the significance of landscape ecology in management of urban open spaces • Application of the landscape planning will enable to address the environmental issues. • Understand the significance of biodiversity values and develops a holistic approach in the planning of towns and cities.
Text Books	1. Biodiversity Planning and Design: Sustainable Jack Ahern, Practices.2006 2. The Landscape of Man, London: Jellicoe, G. & Jellicoe, S Thames and Hudson. 1991. 3. Designing the New Landscape. Lyall S. UK: Thames & Hudson. 1998. 4. Design for Human Ecosystems: Landscape, Land Use, and Natural Resources: Lyle Tillman John, Island Press.1985
Reference Books	1. Image of the city: Lynch, K The MIT Press. 1962 2. Site Planning, Lynch, K. Cambridge: The MIT Press. 1962 3. Design with Nature. McHarg I. NY: John Wiley & Co. 1978. 4. Introduction to Landscape Design, Motloch, J. L. US: John Wiley and sons., 2001 5. Landscape Architecture: The Shaping of Man‟s Natural Environment, NY: Simonds, J.O. McGraw Hill Book Co. Inc. 1961.

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Course Title	**Energy, Climate Change And Urban Development**				
Course Code	**MENUP302T (Elective-III)**				
Course Credits	**L**	**T**	**P**	**TC**	
	3	**1**	**-**	**4**	
Prerequisites	**Environmental Planning**				
Course Objectives	**This course will enable students to:** • Study the determinants of Energy supply and demand • Study relationship of plans, Policies and Strategies with reference to energy planning • Study various best practices for urban development with consideration for climate change				
Course Contents	**UNIT-I** **Introduction** Energy, Climate change and urban development **UNIT-II** **Climate Change And Urbanisation** Basics of Climate Change: Greenhouse gases, Anthropogenic causes, Carbon cycle, Global warming; Urban Heat Islands; Impacts of Climate Change: Climate as Forcing Variable, Location attributes, sensitivity and vulnerability of different Sectors, extreme events and their effects. Mitigation for climate change in urban areas (Case studies). **UNIT-III** **Energy And Urbanisation** Sources of energy; Energy planning and management; Energy efficient development **UNIT-IV** **Energy Generation And Consumption** Energy supply and demand, Energy consumption in cities, determinants of energy demand, **UNIT-V** **Plans, Policies And Strategies** Related to energy planning, conservation, climate change mitigation and adaptation **Emerging Concepts** Green GDP; Environmental accounting; Green Budgeting; Carbon Trading; Carbon sequencing; Compact City Concept - Implications of Urban Form, Density, Land Use Pattern, Transportation System, Waste management and				

	Energy Conservation; New urbanism principles, Smart city concept; Policy, programmes, schemes and strategies adopted by Government (Central &State) to achieve sustainability in urban development.
Course Outcomes	**After the completion of course:** • Appreciate the determinants of energy supply and demand • Develop capacity for energy optimization • Approach energy planning as a potential for urban development and thus integrate it to the planning process. • Appreciate and apply the new technologies related to urban development mitigating and adapting to the climate change
Text Books	1. The Smart Growth Manual. Andres, D., Speck, J., & Mike, L. (2009). McGraw Hill. 2. Adapting cities to climate change: Understanding and addressing the development change. Bicknell, J. (2009). London :Earthscan. 3. Cities and Climate Change, OECD Publishing OECD (2010) 4. Global Green Standards: ISO 14000 and Sustainable Development, International Institute for Sustainable Development
Reference Books	1. Cities and Climate Change, Harriet Bulkeley (2013), (Routledge Critical Introductions to Urbanism and the City), Routledge, New York. 2. Compact cities: Sustainable urban forms for developing countries. London: Jenks, M., & Burgess, R. (2000). Spon Press. 3. Low Carbon Cities- Transforming Urban Systems, Lehmann S (2015), Routledge Publications, New York. 4. Green Metropolis: Why living smaller, living closer, and driving less are the keys to sustainability. Owen, D. (2009).

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Course Title	**Technical Paper Writing And Seminar**				
Course Code	**MENUP303P**				
Course Credits	**L**	**T**	**P**	**TC**	
	-	**-**	**4**	**2**	
Prerequisites	**Nil**				
Course Objectives	**This course will enable students to:** • Describe the research process. • Outline the elements of a thesis/dissertation. • Select a research topic of importance to the profession. • Effectively work with their academic advisor and graduate committee. • Develop and follow an appropriate timeline for completion of the thesis/dissertation. • Identify an appropriate theory base for their research. • Develop a conceptual model relevant to their research.				
Course Contents	• Each student will select a topic in the area of geo-tech engineering and related area in the state of art area & technical development. • The topic will be decided by the Student, Guide and Departmental research committee. • Each student will make seminar presentation with audio/video aids, for the duration of 45 minutes and seminar work shall be in form of report to be submitted by the students at the end of the semester. • This report copies must be duly signed by guide and Head of Department. Attendance of all students for all seminars is compulsory. • Define the statement of research problem • Literature survey, familiarity with research journals • Broad knowledge off the available techniques to solve the problems • Technical writing skills • Presentation skills				
Course Outcomes	**After the completion of course:** • Acceptable with minor or no revisions (no further approval required) • Acceptable with major revisions in content or format not acceptable				
Reference	1. Student will learn to survey the relevant literature such as books, national/international referred journals and contact resource persons for the				

Books	selected topic of research. 2. Roberts, C. M. (2010). The dissertation journey. Thousand Oaks, CA: Corwin.

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Course Title	**Pre-Dissertation (Literature Review/ Problem Formulation/ Synopsis)**				
Course Code	**MENUP304P**				
Course Credits	**L**	**T**	**P**	**TC**	
	-	**-**	**20**	**10**	
Prerequisites	**Nil**				
Course Objectives	**This course will enable students to:** • Demonstrate the skills for good presentation and technical report writing skills. • Apply engineering and management principles while executing the project.				
Course Contents	• Each student will select a topic in the area of Urban & Town Planning engineering and related area in the state of art area & technical development. • Every student will carry out dissertation under the supervision of a Supervisor. • The topic shall be approved by a committee constituted by the Head of the concerned department. • Every student will be required to present two seminar talks, First at the beginning of the Dissertation (Phase-I)to present the scope of the work and to finalize the topic, and second towards the end of the semester, presenting the work carried out by him/her in the semester. • The committee constituted will screen both the presentations and work. • Define the statement of research problem • Literature survey, familiarity with research journals • Broad knowledge off the available techniques to solve the problems • Technical writing skills • Presentation skills				
Course Outcomes	**After the completion of course:** • Student will learn to survey the relevant literature such as books, national/international referred journals and contact resource persons for the selected topic of research. • Students will be able to use different experimental techniques. • Students will be able to use different software/computational/analytical tools. • Students will be able to design and develop an experimental set up/equipment/test rig.				

	• Students will be able to conduct tests on existing set ups/equipments and draw logical conclusions from the results after analyzing them. • Students will be able to either work in a research environment or in an industrial environment.
Reference Books	1. Student will learn to survey the relevant literature such as books, national/international referred journals and contact resource persons for the selected topic of research. 2. Roberts, C. M. (2010). The dissertation journey. Thousand Oaks, CA: Corwin.