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-I

**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. First 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 | MENUP101T | Advanced Computational Methodology | 3 | 1 | - | 4 | 30 | 70 | 100 | 3 |
| 2 | MENUP102T | Urban Planning: History, Theory & System | 3 | 1 | - | 4 | 30 | 70 | 100 | 3 |
| 3 | MENUP103T | Socio Economic basis for Planning | 3 | 1 | - | 4 | 30 | 70 | 100 | 3 |
| 4 | MENUP104T | Housing | 3 | 1 | - | 4 | 30 | 70 | 100 | 3 |
| 5 | MENUP105T | Elective-I | 3 | 1 | - | 4 | 30 | 70 | 100 | 3 |
| 6 | MENUP106P | Planning Studio-I | - | - | 2 | 1 | 15 | 35 | 50 | - |
| 7 | MENUP107P | Geo Informatics in Planning Lab | - | - | 2 | 1 | 15 | 35 | 50 | - |
| | **Total Contact Hr Per Week: 24** | | **Total Credit: 22** | | | | **Grand Total Marks:** | | **600** | |

L: Lecture T: Tutorial P: Practical

**Elective-I**

| S.NO. | Course Title |
|---|---|
| 1 | Planning Techniques |
| 2 | Environmental Planning |
| 3 | Rural Planning and Development |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

| | | | | | |
|---|---|---|---|---|---|
| **Course Title** | **Advanced Computational Methodology** | | | | |
| **Course Code** | **MENUP101T** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **3** | **1** | **-** | **4** | |
| **Prerequisites** | **Engineering Mathematics –I & II** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Represent the problems mathematically.<br>• Optimize the solutions.<br>• Analyze the result numerically and linguistically by fuzzy theory.<br>• Emphasize the meaning and purpose of these techniques and their use in solving Engineering Problems. | | | | |
| **Course Contents** | **UNIT – I**<br>**Graph theory and its application**<br>Basic Terminology. Simple graph. Multi graph, Types of graph .Path .Cycles Eulerian and Hamiltonian graph. Shortest path problem Representation of graph. Trees and their properties. Spanning Tree. Binary Tree. Tree traversal.<br>**UNIT - II**<br>**Fuzzy Set and its Applications**<br>Fuzzy sets-Basic definitions, α-level sets. Convex fuzzy sets. Basic operations on fuzzy sets. Types of fuzzy sets. Cartesian products, Algebraic products. Bounded sum and difference, t-norms and t-conorms. The Extension Principle-The Zadeh's extension principle. Image and inverse image of fuzzy sets. Fuzzy numbers. Elements of fuzzy arithmetic.<br>**UNIT - III**<br>**Cryptography and its application**<br>Introduction to the Concepts of Security: The need for security, Security Approaches, Principles of Security, Types of Attacks. Cryptographic Techniques: Plain Text and Cipher Text, Substitution Techniques, Transposition Techniques, Encryption and Decryption, Symmetric and Asymmetric Key Cryptography, Steganography, Key Range and Key Size, Possible Types of Attacks. DES, RSA, Digital Signature.<br>**UNIT – IV**<br>**Statistical Analysis**<br>Expectation and variance of random variable. Sampling Distribution. Testing a Hypothesis. Level of significance. Confidence limits. Test of significance for large sample. Central limit theorem. Test of significance for means of two large | | | | |

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| | samples. Sampling Variables-small samples. Student t-distribution, Chi-square test.<br>**UNIT - V**<br>**Optimization Techniques**<br>Dynamic Programming-Deterministic and Probabilistic Dynamic programming. Inventory- Basic characteristics of an inventory system. The Economic order quantity. Deterministic models. Network analysis (PERT/ CPM). |
| **Course Outcomes** | **After the completion of course:**<br>• This is the foundation of research and development in the computational domain of engineering and technology.<br>• As the prerequisite, this will be traced the thought and ideas to design the behavioral tools over the engineering range.<br>• This is a transformation from theory to application through measuring theory of natural problems and its applications. |
| **Text Books** | 1. Calculus of Variations with Applications, Gupta, A.S.-Prentice Hall of India(P)Ltd., New Delhi, 6th print,2006<br>2. Introduction to Partial Differential Equations, Sankar Rao, .K. - Prentice Hall of India(P) Ltd., New Delhi, 5th print,2004<br>3. Advanced Engineering Mathematics Jain. R. K, Iyengar .S.R.K.-,Narosa publications 2nd Edition,2006<br>4. Numerical Methods in Science and Engineering, Grewal, B.S-Kanna Publications, New Delhi.<br>5. Numerical Methods, Kandasamy. P, Thilagavathy. K and Gunavathy, K-S Chandand Co., Ltd., New Delhi, 5th Edition,2007<br>6. Theory and problems of Complex Variables with an Introduction to Conformal Mapping and Its applications , Schaum's outline series, Spiegel, M.R-McGraw Hill BookCo.,1987 |
| **Reference Books** | 1. Multi - Objective Optimization Using Evolutionary Algorithms, K. Deb (2003)John Wiley<br>2. Applied Statistics & Probability for Engineers: Montgomery, Douglas C. &Runger, George C. (2007), 3/e,Wiley India.<br>3. Parallel distributed processing Vol.1 (1986) Rumelhart, D.E and McClelland, J.L.,, M I T Press, 1986.<br>4. Fuzzy logic implementation and applications (1996), Patyra, M.J. and Mlynek Wiley,. |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

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|---|---|---|---|---|---|
| **Course Title** | **Urban Planning: History, Theory & System** | | | | |
| **Course Code** | **MENUP102T** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **3** | **1** | **-** | **4** | |
| **Prerequisites** | **Urban & Town Planning** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Introduce the discipline of planning and planning history<br>• Expose planning theory and practice<br>• Make aware of the institutional mechanism involved in planning and implementation process | | | | |
| **Course Contents** | **UNIT – I**<br>**Introduction to Planning:** Purpose, scope and limitations of settlement planning; planning process, definitions of key terms in planning - City and region, rural-urban fringe, rural urban continuum, urbanization and impact on planning, planning process, sub fields within planning – housing, transportation, environmental planning, regional planning, etc<br>**UNIT – II**<br>**Planning History – Pre Historic & Ancient:** Need to study history of planning and evolution of human settlements; ; Hunter, gatherer, farmer and formation of organized society; origins and growth of cities; Basic elements of the city; Historic determinants of settlement evolution: - geographical, climatic, socioeconomic, cultural, political, defensive, etc. Human settlements as an expression of civilizations; Ancient civilizations – Egypt, Mesopotamia, Greek,<br>**UNIT – III**<br>**Planning History – Medieval to Current :**Medieval, Renaissance, Industrial and postindustrial cities; Contribution of individuals to city planning: Patrick Geddes, Lewis Mumford, Le Corbusier, Frank Lloyd Wright, C.A. Doxiadis, Clarence Perry, Peter Hall, etc;<br>**UNIT – IV**<br>**Planning Theories: Theory** of city form: normative models – cosmic, machine, and organic; Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory; Ebenezer Howard's Garden City Concept; Land use and land value theory of William Alonso. Modes of planning – blue print, synoptic, incremental, transactive, advocacy, participatory, mixed scanning; political economy approach - communicative model, new urbanism, and just city. Emerging Concepts: global city, information city, inclusive city, safe city, shadow city, divided city, sustainable city. | | | | |

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| | **UNIT – V**<br>**Urbanization in India and Evolution of Planning :**History of urbanization in India – ancient, medieval, pre colonial, colonial, new towns; spatial patterns of urbanization, settlement systems, classification of cities; Character of Indian cities and challenges involved in planning; Urban planning and five year plans, urbanization policy |
| **Course Outcomes** | **After the completion of course:**<br>• Understand the planning process, theory and practice and its role in planning of cities<br>• Appreciate of the role of historical developments in planning and its evolution and trace these influences to the current situation<br>• Understand the institutional mechanism involved in urban planning |
| **Text Books** | 1. Urbanization and urban systems in India, R. Ramachandran (1991), Oxford University Press<br>2. Urban & Regional Planning, Peter Hall, Mark Tewdwr-Jones (2010 ) Routledge<br>3. Death and Life of American cities, Jane Jacobs (1989 ) Knopf Doubleday Publishing Group |
| **Reference Books** | 1. The Urban Pattern 5th edition, Arthur B. Gallion (2003) CBS Publishers & Distributors.<br>2. History of Urban Form Before the Industrial Revolution AEJ Morris (2013)<br>3. Urban and Regional Development Plans Formulation & Implementation Guidelines (2014) Ministry of Urban Affairs & Employment, Govt. of India, New Delhi |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

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|---|---|---|---|---|---|
| **Course Title** | **Socio Economic Basis For Planning** | | | | |
| **Course Code** | **MENUP103T** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **3** | **1** | **-** | **4** | |
| **Prerequisites** | **Economic Planning** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Understanding of the relationship between sociology and urban planning & the relative significance of social, geographical, biological and economic factors in shaping the urban environment. | | | | |
| **Course Contents** | **UNIT – I**<br>Nature and scope of sociology – basic concepts like family, institution, group, association, community, social process, social norms, social structure, social stratification etc. Introduction to the sociological concepts of Marx, Talcot, Parsons, Weber, Durkheim, Riesman, Jacobs.<br>**UNIT – II**<br>Indian society - Culture, language, religion, caste, rural community and its relationship with urban community, agrarian and industrial societies characteristics of urban and rural poverty.<br>**UNIT – III**<br>Patterns and trends in Indian urbanization Urban social structure and stratification, dynamics of growth and change. and its role. Socio-economic transformation, social problems of urban poor, slums, social planning, policies and programmes.<br>**UNIT – IV**<br>Basics of Economics – Concepts of economics and economic growth and development, GDP, GNP, per capita income, inclusive development,; demand and supply, production economics, economies of scale; urban and regional growth, land economics and land use planning. Introduction to economics of urban areas; Basic concepts of macro-and micro-economics. Economic and spatial planning in India<br>**UNIT – V**<br>Population and demographic – population issues in India – source of demographic Population data capturing in India (Population census, Civil Registration systems, Sample registration systems etc). Population characteristics and structure, composition, occupational structure, determinants of population growth, Migration and its implication in settlement development and planning,- population forecasts and projections | | | | |

**M.Tech.(Urban & Town Planning Engineering)**
**Semester-I**
**2022-23**

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| **Course Outcomes** | **After the completion of course:**<br>• Understand the relationship between sociology and urban planning<br>• Have an insight in to social, geographical, biological and economic factors that shapes the urban environment |
| **Text Books** | 1. Socio Economic Base for Planning, Dr. A.N. Sachitha nandan-Teaching Material prepared by for the Institute of Town Planers, India.<br>2. An Introduction to Sociology, Vidya Bhushan & Prof. D.R. Sachdeva – Kutab Mahal Publishers.<br>3. Principles of Population Studies, Dr. Ashal A. Bende & Mrs. Tara Kanitkar-Himalaya Publishing House, Bombay. |
| **Reference Books** | 1. Society& Population, Dand M. Heu — Eastern Economy Edition, 1978.<br>2. Housing: The Social and Economic Elements, Smith, Wallace F., University of California Press, 1971 |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

<table>
<tr><td>Course Title</td><td colspan="5">Housing</td></tr>
<tr><td>Course Code</td><td colspan="5">MENUP104T</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">Basic Knowledge of Subject</td></tr>
<tr><td>Course Objectives</td><td colspan="5">This course will enable students to:<br>• Expose the various issues related to housing<br>• Introduce the basic terms, concepts and socio-dimensions of housing</td></tr>
<tr><td>Course Contents</td><td colspan="5">UNIT–I<br>Concepts and Definitions: Concept of housing, Relevance of housing, Shelter as a basic requirement, Determinants of housing, definitions. Habitat Agenda, Global-housing Challenges. Introduction to economics of housing, housing stock, housing shortage, housing need and demand. Affordability – household income & housing – Issues related to housing the poor, houseless population, Slums & Informal settlements.<br>UNIT-II<br>Housing typologies based on materials, form and characterises of construction: Structural conditions, materials of construction, housing age, dilapidation, obsolescence, occupancy rate, traditional houses, plotted development, group housing, multi-storied housing, villas etc.<br>UNIT-III<br>Social and Economic Dimensions: Housing and social security, role of housing in development of family and community well-being, status and prestige related to housing, safety, crime and insecurity, deprivation and social vulnerability. Gender dimensions of housing, housing for elderly. Contribution of housing sector to national wealth, GDP and employment creation, housing finance. Housing in the National plans<br>UNIT –IV<br>Housing and Human Settlements: Understanding housing as an important land use component of city development plan /master plan, location of residential zones in relation to other land use zones in the city, considerations for carrying out city level housing studies. Population and household projections, estimation of future housing requirements. Land use provisions, suitability of land for housing. Factors contributing to housing stress and stress analysis.<br>UNIT- V<br>Housing Environment: Housing for the poor, Slums and squatters, informal sector housing, Caste, Ethnic and Class groupings & segregation in housing,</td></tr>
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| | Access to infrastructure, services and facilities in housing areas – public health issues – Housing Environment and General Welfare – Residential satisfaction & factors contributing to residential satisfaction |
| **Course Outcomes** | **After the completion of course:**<br>• Students be able to appreciate the housing sector as an integral part of overall town planning system<br>• Have a basic understanding of housing at the neighborhood and city level<br>• Able to appreciate typologies of housing in relation to culture and environment factors |
| **Text Books** | **Name of the Text Books & References:**<br>1. People and Housing in Third World Cities, Dwyer D.J., 1981 Orient Longman<br>2. Housing ; a factual Analysis, Beyer Glen H. 1958, The Macmillan Co.,NY<br>3. Man's Struggle for Shelter in an Urbanizing World, Abrams, and Charles. 1964 MIT, Harvard<br>4. Urban Housing in the Third World, 1977 Payne, Geofrey. Routledge and Keegan Paul, USA<br>5. Inside the Civano Project (Green Source Books): A Case study of Large-Scale Sustainable Neighborhood Development, Al Nichols, Jason Laros (McGraw-Hill's Green source Series) 2009 McGraw – Hills Professional |
| **Reference Books** | 1. Sustainable Urbanism: Urban Design with Nature, Douglas Farr. John Wiley & Sons<br>2. Shelter in India – Sustainable Development Series, Aromar Revi. 1990 StusiusInc / Advent Books Division<br>3. International Institute of Energy Conservation Eco housing Assessment criteria Version II USAID |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

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|---|---|---|---|---|---|
| **Course Title** | **Planning Techniques** | | | | |
| **Course Code** | **MENUP105T (Elective-I)** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **3** | **1** | **-** | **4** | |
| **Prerequisites** | **Knowledge of Planning** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Course Planning Techniques is to introduce techniques used for planning at various stages from preliminary to advanced. As this is a subject from integrated course the techniques broadly used by all courses of specialization have been considered while designing this course. | | | | |
| **Course Contents** | **UNIT–I**<br>Basic Terminology; Classification of Cities; City Region; Spheres of Influence, Urban Rural Fringe; Internal Structure of Urban Areas; Density Patterns; Land Use Classification and Coding. Base map Preparation: Representation of Spatial Data; Choice of Appropriate Scales: Graphical, Linear and Areal Scales; Contents of Base Maps at Various Scales; Notations - Basic Disciplines of Maps<br>**UNIT-II**<br>Techniques of Conducting Surveys for Land Use, Building Use, Density, Structural Condition of Buildings, Heights of Building, Land Utilization and Physical Features of Land; Techniques for Conducting Regional Surveys; Regional Delineation Techniques: Factor Analysis, Cluster Analysis; Row Analysis; Case Studies in Regional Delineation<br>Formulation of Spatial Standards for Residential, Industrial, Commercial and Recreational Areas; Space Standards for Facility Areas, Utilities and Networks; Population, Distance Criteria; Performance Standards; Case Studies: Residential and Non-Residential Density Patterns and Analysis<br>**UNIT-III**<br>Computer Applications for Data Collection and Analysis: Tools of Analyzing Different Types of Data; Use of Excel Software for Analyzing Data; Applications of Features of Excel- Basic and Selected Advanced Features;CAD Applications for Base Map preparation: Recapitulation of CAD tools- drawing, editing, modifying, layer management etc.; Scaling Drawings and Images; Plotting and Printing<br>**UNIT –IV**<br>Socio-Economic Surveys: Data Requirements for Urban and Regional Planning; Sources of Primary and Secondary Data; Questionnaire Design, Measurement Scale and their Application; Sampling Techniques; Types of Socio-Economic Surveys. Setting of Goals and Objectives; Methodologies for Preparation of | | | | |

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| | Urban Regional Development Plans, Master Plans, Structure Plan and Strategy Plan Techniques; Plan Implementation Techniques; Public Participation and Plan Implementation; Techniques of Urban Renewal and Central Area Re-Development; Contents of a Master Plan, Regional Plan, Etc.<br><br>**UNIT- V**<br><br>**Introduction to Geo informatics** Raster Data Capture: Types of Platforms: Space Bourne - Resource Satellite, Swath, Sensing Capabilities; Air Bourne – Aerial Photography; Ground Bourne – Digital Survey; Multi-Return Concept - Spectral Signature. Raster Data Processing and Analysis: Image Interpretation – Qualitative and Quantitative Elements; Resolutions – Spatial, Temporal, Spectral, Radiometric; Geo-Rectification – Coordinate System, Datums, Geo-Referencing and Map Projections; Geometric Distortions, Image Enhancement, Transformation, Segmentation; Data Creation: Thematic Model, Vector Data Features, Map Preparation – Digitization; Non-Spatial Data – Database Creation; Integration of Spatial and Non-Spatial Data; Data Query. Data Analysis: Buffers, Overlay, Proximity, Network Analysis; 3D Terrain Modelling–Triangulated Irregular Network. Data Presentation: Layout Preparation – Grids, Legend, Symbology; Printing – Sheet Size, Scale. |
| **Course Outcomes** | **After the completion of course:**<br>• Use the techniques in respective studio works. Appropriate software applications in CAD and GIS Would also be taught as part of this course |
| **Text Books** | 1. Urbanization and Urban Systems in India, Ramchandran R. Oxford University Press<br>2. Cities Urbanization and Urban Systems, Sidddhartha K. and Mukherjee S., Kisalaya Publications<br>3. Economic and Social Geography Made Simple, Knowles R. and Wareing J., Rupa and Company |
| **Reference Books** | 1. Concepts and Techniques of Geographic Information Systems, Lo C.P. and Yeung A.K.W., PHI Learning Pl<br>2. Planning Techniques for AITP, Reader on Institute of Town Planners India<br>3. UDPFI Guidelines Volume 1, Ministry of Urban Affairs and Employment Govt. of India, New Delhi |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

<table>
<tr><td>Course Title</td><td colspan="5">Environmental Planning</td></tr>
<tr><td>Course Code</td><td colspan="5">MENUP105T (Elective-I)</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">Environmental Engineering-I & II</td></tr>
<tr><td>Course Objectives</td><td colspan="5">This course will enable students to:<ul><li>This course is structured to introduce the student in to the concepts of environmental planning and issues related to it.</li></ul></td></tr>
<tr><td>Course Contents</td><td colspan="5">UNIT–I<br>Introduction to Environmental planning, aims, objectives and Implementation.<br>UNIT – II<br>Introduction to State and National policies. Environment planning theories and their applications, Issues related to Environment and ecology like, de - forestation, soil erosion, water logging and soil salinization. Scarcity of natural.<br>UNIT–III<br>Resources and exploitation of them for development, Planning for optimizing the use of natural resources, methods used like water harvesting, waste land management and minimizing use of fossil fuel etc.<br>UNIT– IV<br>Environmental aspects with respect to tribal and rural areas.Problems of air and water pollution, industrial pollution and solid waste management in urban areas. Frame work, statement prediction and assessment of impacts of air, water, and noise, cultural and socio-economic environment.<br>UNIT– V<br>Methods of impact analysis, public participation, Environmental impact assessment and statements. Environmental protection international and national agencies and legislation, Environmental policies for various geographical regions. Environment Impact Assessment. Climate change and settlement planning.</td></tr>
<tr><td>Course Outcomes</td><td colspan="5">After the completion of course:<ul><li>This will enhance the ability of the student to develop an environmental approach to planning</li></ul></td></tr>
<tr><td>Text Books</td><td colspan="5"><ol><li>NEPA and Environmental Planning: tools, Techniques and approaches by Charles HEccleston</li><li>Energy, Ecology and Environment / Wilson, Richards & Jones Willium.</li></ol></td></tr>
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| **Reference Books** | 1. NEPA and Environmental Planning: tools, Techniques and approaches by Charles HEccleston<br>2. Hand Book of Environmental Planning /Mcenro, James.<br>3. Sustainable Development / Khanna, D.D |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

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|---|---|---|---|---|---|
| **Course Title** | **Rural Planning and Development** | | | | |
| **Course Code** | **MENUP105T (Elective-I)** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **3** | **1** | **-** | **4** | |
| **Prerequisites** | **Rural Planning** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Understand and appreciate the importance of rural development in the national perspective and development.<br>• Expose the validity of the various programmes and problems faced in rural India, Rural Development as a pre –requisite for regional and national development and Quality of human life. | | | | |
| **Course Contents** | **UNIT–I**<br>Mutual dependence between urban and rural areas, between industries and agriculture, characteristics of symbiotic, development in India in this context. Levels of living of rural people – trends and development, difference in level of development between various regions within India and different socio – economic groups.<br>**UNIT – II**<br>National planning and rural development, concept of planning for rural settlements. Regional development and urban rural partnership, related input and infrastructure development, agriculture development, allied activities and pattern of rural linkage, communication and marketing facilities, community development, instructions and delivery of social services.<br>**UNIT–III**<br>Rural settlement, typology, structure, spatial significance in metro regions and interior areas. Planning principles for village and community norms. Rural reconstruction, basic need and rural sanitation, water supply, hygiene and drainage, technology transfer and options. Area, District and Block level development planning and implementation, public participation in rural development process, role of voluntary organizations.<br>**UNIT– IV**<br>Rural energy issues, renewable and alternative resources of energy, ecological and environment considerations in rural development and village planning.<br>**UNIT– V**<br>Models and theories of rural planning , policies and practices at global level, provisions in national and state five year plans and city master plans etc. Action programme initiated at national and global level. Housing agencies and co-operative feasibility and implementation of existing policies and action | | | | |

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| | programme Projections and forecasting |
| **Course Outcomes** | **After the completion of course:**<br>• Understand the planning process, theory and practice and its role in planning of cities<br>• Appreciate of the role of historical developments in planning and its evolution and trace these influences to the current situation<br>• Understand the institutional mechanism involved in urban planning |
| **Text Books** | 1. Rural planning and development by Thomas Adams<br>2. Micro level rural planning: principal, methods and case study by RP Mishra |
| **Reference Books** | 1. Micro level rural planning: principal, methods and case study by RP Mishra. |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

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|---|---|---|---|---|---|
| **Course Title** | **Planning Studio-I** | | | | |
| **Course Code** | **MENUP106P** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **-** | **-** | **2** | **1** | |
| **Prerequisites** | **Knowledge of Subject** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Planning Studio aims to introduce theoretical and applied understanding of various aspects of Urban Planning. | | | | |
| **Course Contents** | **List of Experiments**<br>Assignments / Exercises are for familiarization of practical applications of norms and bye- laws .Understanding city and land-use character. Application of various techniques and theories at settlement level and developmental perspective of city planning.<br>A student is expected to understand the intricacies and interface between various variables of the site such as soil conditions, topography, environmental dimensions, location, spatial standards, leading to its application for a site planning exercise. The area appreciation exercise is to enable the students to understand and contextualize of the location of the area in relation to the city, zone and area in which the particular place is situated. This is done in relation to the socio-economic, spatial and cultural characteristics of that city, zone, location, etc. The main purpose is to make the students appreciate the location attributes of land parcels for future development in a city. | | | | |
| **Course Outcomes** | **After the completion of course:**<br>• Research, analyse and synthesise knowledge about a specific site in the development of a design response, with particular attention to topography, landscape character, users, sensory information and climate.<br>• Apply fundamental design principles (primary elements, composition of form and space, proportion and scale, ordering principles) to their assessable work.<br>• Work productively in a studio environment and, in turn, develop inter-personal skills, verbal communication skills and critical thinking through small group discovery activities and formative studio exercises. | | | | |
| **Text Books** | 1. Planning and forecasting technique: an introduction to macroeconomics applications / RABINSON, J N | | | | |
| **Reference Books** | 1. Planning and forecasting technique: an introduction to macroeconomics applications / RABINSON, J N | | | | |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23

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|---|---|---|---|---|---|
| **Course Title** | **Geo Informatics in Planning Lab** | | | | |
| **Course Code** | **MENUP107P** | | | | |
| **Course Credits** | **L** | **T** | **P** | **TC** | |
| | **-** | **-** | **2** | **1** | |
| **Prerequisites** | **Geo Informatics** | | | | |
| **Course Objectives** | **This course will enable students to:**<br>• Know the student in building GIS models for urban and regional planning applications with hands on experience of spatial data, attribute data input and experiment with GIS analysis | | | | |
| **Course Contents** | **List of Experiments**<br>1. Classification of spatial and non-spatial data application of spatial data in urban and regional plans objectives and functions of GIS models in urban and regional planning<br>2. Defining the objectives of GIS planning problems – Identification of required spatial data layers – coding schemes digitization of spatial data – editing spatial data usable for the given planning problem.<br>3. Role of attribute data in defining geographic features – adding attribute data file – topology generation – Joining attribute data to its geographic features.<br>4. Performing overlay functions – manipulating attribute data – GIS modeling – map and report generation – case problems on regional analysis, impact assessment study, project formulation and land suitability analysis.<br>5. Need for model – Land suitability analysis – Urban land use modeling – Change demand modeling – Transition potential modeling and land allocation modeling. | | | | |
| **Course Outcomes** | **After the completion of course:**<br>• Get the practical knowledge of various software through which different test can be performed.<br>• Make efficient to run various software package. | | | | |
| **Text Books** | 1. Numerical Method in Engineering, M.G.Salvadori and M.L.Baron,<br>2. Computer Programming and Engineering Analysis, Syal and Gupta, | | | | |
| **Reference Books** | 1. Society& Population, Dand M. Heu — Eastern Economy Edition, 1978.<br>2. Housing: The Social and Economic Elements, Smith, Wallace F., University of California Press, 1971 | | | | |

# M.Tech.(Urban & Town Planning Engineering)
# Semester-I
# 2022-23