DEPARTMENT OF PLANNING
ANNA UNIVERSITY, CHENNAI

VISION:
We envision our students get imparted planning education, which contributes ability to unlock their full potential to enable them to reach the pinnacle of the Profession.

MISSION:
1. Promote the department into a Centre of Excellence through inter disciplinary associations and innovative researches.
2. Strive to instill professional ethics and excellence through effective industry-institute collaboration.
3. Bridge the gap between industry expectations and students' competencies through appropriate training.
4. Impart soft skills such as communication, presentation, group discussion and decision taking.
5. Encourage, motivate, and inspire students to have positive attitude and to aim high to scale greater heights in the profession.
1. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs):

i) Become an urban and regional planner with knowledge and understanding of the socio-economic, cultural, physical, environmental, political, legal and management aspects of urban and rural settlements.

ii) Become part of urban and regional planning authorities, local governments, housing development agencies or other related public agencies.

iii) Become a professional consultant who can independently/jointly offer support in planning and executing the various activities of the planning process.

iv) Become a researcher to critically investigate planning concepts, theories, and techniques to advocate newer theories, innovative concepts and technology driven analytical tools for better management of human settlements.

v) Become an activist to influence policies and strategies of the government at various levels for a sustainable development and enhancement in quality of life of the citizens.

2. PROGRAMME OUTCOMES (POs):

After going through four years of study, B.Plan Graduates will exhibit ability to:

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<tr>
<th>No.</th>
<th>Graduate Attribute</th>
<th>Programme Outcome</th>
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<td>PO1</td>
<td>Planning knowledge</td>
<td>An ability to apply the professional knowledge to solve the complex planning problems.</td>
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<tr>
<td>PO2</td>
<td>Problem Analysis</td>
<td>An ability to independently carry out research/investigation and development work to solve practical problems in the field of urban and regional planning and development.</td>
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<td>PO3</td>
<td>Design/development of solutions</td>
<td>An ability to demonstrate a degree of mastery over the understanding of the functioning of human settlements at various levels and to articulate contextual planning interventions required for sustainable development.</td>
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<td>PO4</td>
<td>Conduct investigations of complex problems</td>
<td>To use research-based knowledge and research methods including planning approaches, analysis and interpretation of data, and synthesis of the information to provide valid solutions.</td>
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<tr>
<td>PO5</td>
<td>Modern tool usage</td>
<td>An ability to create, select and apply appropriate techniques, resources and advanced applications to predict, stimulate and analyses the complex spatial activities.</td>
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<td>PO6</td>
<td>The Planner and Society</td>
<td>A willingness to engage in undertaking socially useful activities related to planning and development of neighbourhood, town/city and region with an exposure to best practices in the field of planning and latest technologies as planning tools.</td>
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<td>PO7</td>
<td>Environment and sustainability</td>
<td>A level of understanding of socio-economic and environmental consequences of planning strategies and maturity to collectively work in groups and evolve consensual decisions towards achieving principle goals of development.</td>
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PO8 Ethics Serves as a competent and ethical professional planner.
PO9 Individual and Team Work Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
PO10 Communication An ability to write and present planning documents, technical reports including plan documents of urban and rural settlements.
PO11 Project Management and Finance A level of ability and knowledge to participate and strengthen the institutional mechanism for development of the planning education and practice.
PO12 Life-Long Learning Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of professional change.

PEO / PO Mapping:

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3- High 2-Moderate 1-Low
# ANNA UNIVERSITY, CHENNAI

## UNIVERSITY DEPARTMENTS

**BACHELOR OF PLANNING (B. PLAN) – FULL TIME**

## REGULATIONS 2023

**CHOICE-BASED CREDIT SYSTEM**

**CURRICULA AND SYLLABI FOR I TO VIII SEMESTERS**

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* NCC Credit Course level 2 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.
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* NCC Credit Course level 3 is offered for NCC students only. The grades earned by the students will be recorded in the Mark Sheet, however the same shall not be considered for the computation of CGPA.
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PROFESSIONAL ELECTIVE COURSES (PEC)

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OBJECTIVES
- To introduce to students, the basic concepts, and rationales of planning.
- To familiarize students with basic planning terminology.
- To understand the plan making processes, levels of planning.
- To provide overview of planning practice and actions in India.
- To introduce the hierarchy of development plans and planning process.

UNIT I DEFINITIONS AND RATIONALES OF PLANNING
Definition of Urban and Rural; Basic definitions and frequently used terminology in planning – land use, demography, physical infrastructure, social infrastructure and housing, Goals, objectives, and components of planning; Benefits of planning; Planning as a discipline and multidisciplinary nature of planning; Different roles of planners.

UNIT II FOUNDATIONS OF PLANNING & LEVELS OF PLANNING
Orthodoxies of planning, Components of sustainable urban and regional development; Reasoning and its forms in planning; Planning knowledge and its various forms; Arguments for and against planning; Economic and social aspects as bases of town and country planning, Constitution of India; Nature of the Indian federal structure; Hierarchy of administrative boundaries in India; Various levels of Planning; Reasoning and its various in planning - space, place, and location.

UNIT III SOURCING INFORMATION IN PLANNING
Census of India, National Sample Survey organization, Basics of web-based information portals, datasets as raw information sources and guidelines adopted in planning.

UNIT IV DEVELOPMENT PLANS

UNIT V PLANNING PROCESS
Planning system in India - Institutional mechanism, Plan making process – Delineation of planning area, Assessment of developmental issues, Plan period, Formulation of aim and objectives, Projection of requirements, Development proposals and phasing - Public Participation - Constraints in plan preparation and implementation - Planning Process in the formulation and implementation of development plans.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Able to understand the influence of planning as a profession and its correlation with other disciplines.

CO2 Demonstrate understanding about the foundational concepts and terminologies used in planning.

CO3 Expose about planning process and justify the rationale of spatial planning.

CO4 Acquire knowledge on various information sources and guidelines.

CO5 Able to distinguish the scope and level of planning.

CO6 Acquire knowledge on types of development plans, planning organizations and Governance of Planning.

TEXT BOOKS

REFERENCES

CO-PO Mapping

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BN3102 DEMOGRAPHY AND URBANISATION

OBJECTIVES
- To understand the basic concept and definitions of the key terms of the population studies and to remember the demographic trends at the global, national, regional and the city level.
- To understand the trends of vital statistics, analyse the population forecasting techniques and creation of cohort tables.
- To understand the basic terms of urbanization and analyse the trend of urbanization at international, national, state, and regional level.
- To analyse the various concepts of any settlement system and evaluate the role of urban settlements.
- To formulate policies and strategies for directing the trend of urbanization in the desired pattern in India.

UNIT I STUDY OF POPULATION

Evolution of population studies, Demographic approaches and key demographic principles including study of population size, determinants of population size, population structure and composition - sex composition, sex ratio, child -woman ratio, measures of age -sex structure, age-sex pyramid; Spatial distribution of population, measures of population distribution and concentration, factors affecting population distribution and density; Demographic trends at global, national, regional and city scale; Census definitions, levels and types of demographic data, methods and sources of demographic data, accessing and using census information available at various levels.
UNIT II  VITAL DEMOGRAPHIC STATISTICS
Trends of vital statistics such as fertility, mortality, migration, demographic balancing equation; Defining migration, theories of migration and population movement, types and effects of migration, migration trends in developing countries; Population growth and decline; Techniques of population projections and forecast; Advantages and limitations, Concept of life table, techniques for preparing life table, its uses and limitations; Computation of survival rates, life expectancy; Concept of cohorts and generation of cohort table and its uses.

UNIT III  URBANIZATION TRENDS AND PATTERNS
Definition of Human settlement, Urban area, Town, City, Urbanization, Suburbanization, Urban sprawl, Peri-urban areas, Central Business District (CBD), Classification of urban areas; Trend of Urbanisation at International, National, Regional and State level.

UNIT IV  SETTLEMENT SYSTEM AND ROLE OF URBAN AREA
Settlement system, primate city, rank-size rule, central place concept, concepts of complementary area, central goods and services, range, threshold etc.; city-region relationship; structure of city regions, area of influence, dominance; rural-urban fringes; its structure, stages of growth, its role in urban growth; urbanization, industrialization, and urban development; push and pull factors; migration trends and impacts on urban and rural development.

UNIT V  POLICIES AND STRATEGIES FOR DIRECTING URBANIZATION TRENDS IN INDIA
Urbanization policy, basic issues in urbanization policy; role of national and state level policies; five-year plans, latest attempts at urbanization policy formulation in the country, Impact of Urbanization on cities and towns, challenges for urban planners.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would have the ability to:

CO1  Develop basic understanding of demography approaches and principles
CO2  Build knowledge on vital demographic statistics
CO3  Decipher and analyse important demographic aspects for preparing development plans.
CO4  Demonstrate skills to examine vital demographic data from diverse sources and analyse them through various tools
CO5  Understand concepts of urbanization and settlement system
CO6  Disseminate knowledge on urbanization policies and plans, and their relationship with planning.

TEXT BOOKS

REFERENCES
BN3103 INTRODUCTION TO SOCIAL SCIENCE

OBJECTIVES

- To understand the definition of basic terms in urban sociology and the impact of the socio-economic indicators on urban and the regional planning.
- To understand various urban social theories and apply their relevance to planning.
- To recognize various social structures and institutions and analyse their relationship with the urban and rural communities.
- To understand social problems in an urban community and its impacts
- To familiarize with political science and political theory

UNIT I INTRODUCTION: THE FIELD OF SOCIOLOGY IN URBAN PLANNING
Introduction to Urban Sociology & Rural Sociology – meaning and importance; Origin and development of urban societies. Some Basic Concepts: urbanization, urbanism, Rural-Urban Continuum, conurbation, suburbanization, urban neighborhood, urban ecology; Basic features of Indian society and culture

UNIT II URBAN SOCIAL STRUCTURE
Urban Community and Its Elements; Social systems, Social Institutions and their functions, Social Groups and Segregation; Urban and Rural Society; Urban Inequalities: Caste, Class, And Ethnic Segregation of Space. Links Between Sociology and Planning.

UNIT III URBAN SOCIAL THEORY
Traditional and modern theories of sociology; methods of investigation and understanding society, man, and environment; social mobility and social – inclusiveness and exclusion

UNIT IV URBANISATION AND SOCIOLOGY
Urbanisation trends in the Global, Asian, and Indian text; Urbanisation and housing – housing needs in context to changing family structure and life style, social segregation, and integration; Social impact assessment of urban development, social problems in urban community -informal settlements, and inclusion issues, resettlement, and rehabilitation

UNIT V CITY MAKING: THE POLITICS OF URBAN FORM
Political Science and Theory Politics and political theory; Basic understanding of the concepts of freedom, liberalism, and neoliberalism; Equity and Equality, Social Justice, Rights and Citizenship, The Right to The City and Village.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would have the ability to:

**CO1** Develop basic understanding of sociology and its principles and its relation in urban context
CO2 Develop basic understanding of the social structure, society and comprehend the links between sociology and planning
CO3 Acquire a conceptual and theoretical framework of social theory and structure in urban context
CO4 Comprehend the social problems in urban context
CO5 Able to understand the basics of political theory and interactions with planning
CO6 Apply the sociological aspects in any development plan, projects, and practices & assess its impacts

TEXT BOOKS

REFERENCES

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BN3104 INTRODUCTION TO ARCHITECTURE AND BUILDING MATERIALS

OBJECTIVES
- To understand the origin and evolution of architecture as a response to the needs, culture, environment, and psychology of human society.
- To identify and utilize the attributes and principles of form, as fundamental tools for generating architectural designs.
- To develop the ability to organize form and space effectively, considering spatial hierarchies, movement, circulation, and the integration of built form with open spaces.
- To understand the properties, characteristics, strength, manufacture, processing and application of various materials.
- To involve students in a number of drawing exercises that will analyze the various building components in a simple load-bearing structure.
UNIT I  INTRODUCTION TO ARCHITECTURE  
Origin and definitions of architecture as need based, cultural, environmental, social, psychological response of human society. Architecture as phenomenological mediation of nature. Components of architecture: use, means, site, shelter, relation to nature, structure, skin, materials, services, circulation, typology, aesthetics, expression, character, symbolism, experience, etc., Understanding form in all its attributes as the basis of creating architecture. Characteristics of form, Form as embodied in and/or constituted by geometric elements such as point, line, plane, volumes. Attributes, generation and interrelationships among elements, Architectural use of elements. Exercises and architectural case studies.

UNIT II  ATTRIBUTES AND PRINCIPLES OF FORM  
Form as manifesting attributes such as pattern, light, colour, surface, texture. Effects of these attributes. Form in its basic state, in combinations, composite organisations and configurations as manifesting characteristics such as proportion, scale, balance, symmetry, asymmetry, rhythm, axis, hierarchy, datum, unity, harmony, dominance, climax, focus. Characteristics acting as principles to generate architectural design. Exercises and architectural case studies.

UNIT III  ORGANISATION OF FORM AND SPACE  

UNIT IV  LIME, STONE, NUD AND BRICK FOR STRUCTURAL USE AND FINISHES  

UNIT V  CONCRETE CONSTRUCTION, STEEL AND GLASS BASICS  
Elements for concrete and type- components of concrete structures - properties and tests on materials Construction details of RCC frames- types of foundations, beams, columns, slabs, walls, lintels and sun shades, sump, water tank, flooring. Construction principles and procedures for structural building components using steel of different sections. Components to include foundations, columns, beams, staircases, roofs (different types of trusses, space frames, geodesic dome, space frame, Steel curtain wall glazing etc), roofing and glazing material. Connections between the different components and fixing. Drawings/ models of the principles.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1  Understand the origin, definitions, and components of architecture, including its relationship to human society, culture, environment, and psychology.
CO2  Explore the attributes and principles of form, such as proportion, balance, rhythm, and harmony, and utilize them as guiding principles to generate architectural designs.
CO3  Develop the skills to organize form and space effectively.
CO4  Apply theoretical knowledge to practical design challenges and developing innovative and contextually responsive architectural solutions.
CO5  Familiarize about the construction details of the basic building materials.
CO6  Understand the mechanism of load transfer in buildings and the importance of various structural materials.
TEXT BOOKS

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3- High 2-Moderate 1-Low

BN3111 PLANNING COMMUNICATION AND TECHNICAL DRAWING

OBJECTIVES
- To learn the techniques, methodologies and tools to convey planning ideas.
- To know how to represents lines, shapes, letters & numbers in drawing sheet.
- To select and use photographic equipment and technologies appropriate to the task.
- To make the students acquire the skills and knowledge to enable them communicate more confidently and effectively using assertive behavior techniques.
- To understand the different aspects of communication.

UNIT I VISUAL COMMUNICATION
Visual studies about use of line, shape, form, texture, color, composition, and scale in cities and buildings, streets, cities with special emphasis on rhythms, balance, harmony and proportion etc.; Sketching as a tool for communication.
UNIT II  TECHNICAL DRAWINGS
Introduction to Drafting principles and techniques, to develop lettering and dimensioning styles and sheet format for presentation. Introduction to scales and its types. Architectural Drawings: Plans, Elevations, Sections.

UNIT III  VERBAL COMMUNICATION
Language and communication; Differences between speech and writing, distinct features of speech; Body language, eye contact, speech, and spoken expression, Elements of a good verbal presentation.

UNIT IV  PHOTOGRAPHY AND MODEL MAKING
Photography as a tool for visual information; Images and history; Developing basic understanding of photography, use of camera and its functions; Elements of good photographs; Understanding of different materials for models and built form models to understand the concepts learnt in the studio; A study of basic land and built forms through models, and presentation models.

UNIT V  INTERPERSONAL COMMUNICATION, LEARNING SKILLS, SELF-AWARENESS
Listening as an active skill; Types of listeners; Listening for general content; Listening to fill up information; Intensive listening; Listening for specific information; Can intensive listening improve understanding.

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1  Ability to understand the relationship between geometry and built form.
CO2  Understand the various attributes of geometric forms and skill in their creation and dissection.
CO3  Ability to project thoughts towards the future through diagrams.
CO4  Enhance skills in oral communication, supported by effective analysis, under real-world time constraints and professional expectations.
CO5  Discover the variety of materials to construct architectural models and different geometrical forms.
CO6  Examine the use of photography as a disciplined way of seeing, of investigating landscapes and expressing ideas.

TEXT BOOKS

REFERENCES
CO-PO Mapping

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3- High 2-Moderate 1-Low

BN3112 BASIC COMPUTER APPLICATIONS IN PLANNING L T P/S C
1 0 4 3

OBJECTIVES
- To develop practical skills in utilizing advanced features of Word
- To enhance proficiency in creating professional presentations, by learning techniques for data visualization to create visually compelling and engaging presentations.
- To acquire a comprehensive understanding of advanced features of spreadsheet, enabling efficient data processing and analysis for planning purposes.
- To develop fundamental knowledge and skills in 2D drafting, facilitating accurate and precise drafting for planning purposes.
- To familiarize with the basics of image editing, enabling the creation of visually appealing graphics for planning presentations and documentation.

UNIT I FEATURES OF WORD PROCESSOR 15
Introduction to Computer Application in Planning; Various Software packages, Current trends in Planning Profession with respect to usage of computer application. Usage of Word in report preparation, Adding and Updating Table of Content, Spell Check, Thesaurus, Working with Columns, Tabs & Indents, Creation & Working with Tables, Margins & Space management in Document, Adding References and Graphics, Importing and exporting to and from various formats, Creating questionnaires using macros.

UNIT II PRESENTATION TECHNIQUES 15
Data visualizations, Formatting, Slides & Layouts, Text and Tables, Pictures & graphics, Hyperlinks, Add Animations and Transitions.

UNIT III DATA ANALYSIS IN SPREADSHEET 15
Defining Data and Database Management, Working with Census Data, Data analysis using various Functions and tools, creating formulas, using formulas, cell references, replication, sorting, filtering, Functions, Preparation of charts and graphs, Creating trend lines, Simple Macros.

UNIT IV BASICS OF 2D DRAFTING 15
Concept of Mapping and Drafting techniques; Introduction to drafting techniques; Understand the fundamental concepts and the terminologies used; Tools for digitization; Modifying tools; Layer creation and management; Creating Blocks; Annotation; Scaling; Plotting and Printing and hand-on exercises.

UNIT V INTRODUCTION TO IMAGE EDITING 15

TOTAL : 75 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Apply advanced features of Word to create professional documents by utilizing software tools effectively.
CO2 Design visually compelling and engaging presentations by employing data visualization techniques and showcasing effective communication skills.
CO3 Analyze and interpret data using advanced functions and tools in Spreadsheets for informed decision-making in planning tasks.
CO4 Apply drafting techniques to produce accurate and precise mapping and drafting, by employing tools for digitization.
CO5 Create visually appealing and well-composed graphics in planning presentations.
CO6 Apply critical thinking skills to identify and solve computer application-related problems in planning.

TEXT BOOKS

REFERENCES

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BN3121 PLANNING STUDIO I: AREA APPRECIATION AND SPACE PERCEPTIONS

OBJECTIVES
- To understand various building blocks, and city planning elements using movies, lectures and tours.
- To understand distance and area and drawing the same to scale.
- To study the built forms of various areas with different characteristics and analyses how the built forms support their activities.
- To show ability to observe, record, map and present different activities and spaces. Comprehend the characteristics of form and space.
- To Evaluate and formulate the neighborhood plan manually and digitally.
CONTENT

Introduction to Maps: Types of maps - political, cadastral, topographic, resource, network and transportation.

Cartography and Map Making: Formulation of maps, elements of maps – Scale, directions, legends, template, etc - Explore various types of Thematic maps.

Studying Area Appreciation: Review literatures, to understand the concept, methods and relevant techniques to appreciate an urban space.

Elements of a city: Understanding various building blocks of a city; Develop understanding about city planning elements using movies, lectures and city tours, etc.

Space Perception: Study of areas with varying characters to appreciate the concepts of built form, activities and people. Appreciate various elements of built form such as plot sizes, FAR, densities, building heights and open spaces; Understanding how built form supports various activities in different areas.

Neighborhood Perception: Mapping of a neighborhood and appreciating the basic characteristics of a neighborhood; Creation of base maps, recording and presenting information on maps, both manually and digitally.

TOTAL : 150 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Able to relate built form, socio-economic pattern, aesthetic and culture of an urban environment.

CO2 Elucidate the techniques of preparation of base and thematic maps.

CO3 Conduct appreciation studies on various aspects of the settlement.

CO4 Able to vision the ideology of studying area appreciation and space by considering stakeholder’s needs, issues, potential and priorities.

CO5 Depict different built environment, scenarios, priorities of development, action areas and elements of a city.

CO6 Presentation of space perception data on maps, video documentations, models, etc.

TEXT BOOKS


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CO-PO Mapping

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3- High 2-Moderate 1-Low

BN3201 CITIES IN HISTORY

OBJECTIVES
- To understand the historical evolution of cities and its significance to the modern planning.
- To analyze the concepts, stratifications, structure and Institutions of the agrarian, industrial and tribal societies.
- To analyze the history, common and distinct elements, built form and the town planning of the medieval, colonial, modern and post-modern cities/towns of India.
- To remember the typologies, origin, growth, decline and renewal of different Indian cities based on location and function.
- To analyze with case studies, the evolution, trend of growth, urban pattern, historical challenges, and interventions of South Asian cities and compare their similarities and dissimilarities with Asian cities.

UNIT I INTRODUCTION
Significance of studying historical processes; Interpreting history for planning purposes; Concept of time as a dimension of built form; Human settlements as a material expression of civilizational development.

UNIT II SETTLEMENTS IN HISTORY
Origin of human settlement; Society: concepts and institutions; Social stratification: concept and bases; Agrarian classes; Industry and labor; Tribe: profile and location; Village: structure and change; Forms- caste, class, power & gender.

UNIT III SETTLEMENTS IN HISTORY
Cities in India from medieval to colonial era; Medieval planning in India and their common and distinct elements; Colonial history, built form and town planning; Colonialism and the modernist city in India. Modernism and Post-Modernism; Elements of Medieval, Colonial; Modern and Post-Modern Towns.

UNIT IV URBAN PROCESSES
Criteria of location and development of towns in Asian history; Political, economic, technological, social and cultural factors shaping settlements through history; Indian city typologies and study of urban growth, decline, renewal in different cities based on functions, locations, etc.

UNIT V HISTORY OF CITIES IN SOUTH ASIA
Evolution of cities in South Asia, Urban Patterns and trends, similarities and differences from Indian cities; Historical challenges and interventions in Asian cities; Examples and case studies from South Asia.

TOTAL: 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

**CO1** Recognize the historical processes for overview of urban settlements and their various urban patterns.

**CO2** Demonstrate familiarity with chronological evolution of different cities and their functional and spatial characteristics in different time periods.

**CO3** Distinguish the various urban processes and different parameters affecting the functioning

**CO4** Relate to a city in terms of its character and pattern.

**CO5** Infer the common elements for categorization of urban patterns based on different parameters.

**CO6** Categorize the locational, developmental, political, economic, technological, social and cultural factors historically shaping the Asian cities.

TEXT BOOKS

REFERENCES

CO-PO Mapping

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3- High 2-Moderate 1-Low

BN3202 SITE AND LAND DEVELOPMENT L T P/S C

OBJECTIVES
- To formulate a site analyses project with illustrations and report.
- To consider and take into account geological factors to prevent natural disasters and the disaster management strategies.
- To examine Hydrological parameters to identify suitable land for the urban and regional planning.
- To evaluate the physical features of the earth’s surface to analyze the land suitability in the urban and regional planning process.
UNIT I  SITE ANALYSIS
Definition of plot, site, land and region, units of measurements, reconnaissance and need for surveying. Importance of site analysis; Onsite and off-site factors; Analysis of natural, cultural and aesthetic factors – topography, hydrology, soils, vegetation, climate, surface drainage, accessibility, size and shape, infrastructures available - sources of water supply and means of disposal system, visual aspects; Preparation of site analysis diagram. Site selection criteria for housing development, commercial and institutional projects.

UNIT II  GEOLOGY
Geological Structure; Land Forms; Weathering; Landslides and Mass Wasting; Instability of hill slopes. Land and terrain suitability for various types of development. Earthquakes; seismic zoning; disaster prevention and other planning considerations.

UNIT III  HYDROLOGY
Ground Water- Concept and role in town planning of different types of terrain, hydrologic cycle; Groundwater bearing properties of different lithological formations; surface water, reservoirs and springs; artificial recharge and ground water mound, hydrological features in relation of seepage; fluctuation of water table and hydrographs; geological structure and underground passages for water supply. Planning considerations for the same. Implications on site selection and development.

UNIT IV  FUNDAMENTALS OF GEOMORPHOLOGY
Geomorphic classification and Evolution of landforms; Geomorphic cycle and their interpretation; Evolution of typical geomorphic features of India; Description and classification of folds, faults, joints, unconformities, fault planes; Land form types; Landslides, instability of hill slopes and its prevention.

UNIT V  CLIMATE AND HUMAN COMFORT
Factors that determine climate of a place; Components of Climate; Climate classifications; Design Considerations involving Site Conditions; Effective temperature; Human thermal comfort; Use of C.Mahony's tables; Design Of Solar Shading Devices; Building Orientation, Plan form and Building Envelope; Heat transfer and Thermal Performance of Walls and Roofs.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Sensitivity towards aspects of site at macro and micro contexts.
CO2 Acquire skills required to critically analyze land forms and related literature.
CO3 Understand the complex social, environmental and cultural challenges that confront land development.
CO4 Demonstrate knowledge about geological and hydrological aspects of land development.
CO5 Ability to exploit potential of site to plan the built environment
CO6 Elucidate the potential/ limitations site offers to plan development considering building orientation, form, and building envelop for the thermal comfort at the micro level.

TEXT BOOKS
REFERENCES

CO-PO Mapping

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3- High 2-Moderate 1-Low

BN3203 INTRODUCTION TO MICROECONOMICS

OBJECTIVES
- To remember the definitions of the basic terms of economics and understand their relevance to planning
- To know the laws and the elasticity of demand and supply and their application in urban and regional planning.
- To understand the economic definitions of Perfect and imperfect market types, and economies of scale with reference to urban and regional planning.
- To evaluate and create urban development plan with reference to the housing transportation and land use sectors and the location of socio-economic and infrastructure facilities.
- To create regional plan with reference to the disparities in development, input-output analyses, sectoral development, and the location of socio-economic and infrastructure facilities.

UNIT I INTRODUCTION TO ECONOMICS

UNIT II THEORY OF DEMAND AND SUPPLY
Definition of need, Demand and supply- Law of Demand and supply- Theory of demand and utility elasticity of demand and supply – its use in Planning- Application of demand and supply in relation to housing and infrastructure services- perfect and imperfect market type – market demand and supply- pricing under different market conditions and the market mechanism, Application of theory in provision of urban services
UNIT III PRODUCTION AND CONSUMPTION

UNIT IV FORMS OF COMPETITION
Performance of Competitive Markets- Efficiency, Equity and Welfare Economics- Imperfect Competition: Monopolies, Oligopolies, Monopolistic Competition and an Introduction to Game Theory- Performance and Regulation of Imperfect Markets- Resource allocation and optimization – Spatial Case Examples

UNIT V DEVELOPMENT AND INVESTMENT
Classical and modern approaches- Growth and development indicators- defining development and under development- Economic role of government- Housing and infrastructure investment – Spatial Case Examples

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Understand and predict how supply and demand concept will affect prices in market economies

CO2 Interpret, apply and relate economic principles to current economic issues

CO3 Compute different measures of macroeconomic activity such as the national income accounts, inflation, and unemployment, and evaluate the shortcomings of traditional economic measures.

CO4 To measure equilibrium level output and measure elasticity of demand

CO5 Recognize how monetary and fiscal policy can be used to achieve policy goals

CO6 Recognize market failure and the role of government in dealing with those failures.

TEXT BOOKS

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## NCC Credit Course Level 1

NX3251 (ARMY WING) NCC Credit Course Level - I

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## NCC Credit Course Level 1* (NAVAL WING)

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### NCC GENERAL
- **NCC 1**: Aims, Objectives & Organization of NCC  
- **NCC 2**: Incentives  
- **NCC 3**: Duties of NCC Cadet  
- **NCC 4**: NCC Camps: Types & Conduct

### NATIONAL INTEGRATION AND AWARENESS
- **NI 1**: National Integration: Importance & Necessity  
- **NI 2**: Factors Affecting National Integration  
- **NI 3**: Unity in Diversity & Role of NCC in Nation Building  
- **NI 4**: Threats to National Security

### PERSONALITY DEVELOPMENT
- **PD 1**: Self-Awareness, Empathy, Critical & Creative Thinking, Decision Making and Problem Solving  
- **PD 2**: Communication Skills  
- **PD 3**: Group Discussion: Stress & Emotions

### SOCIAL SERVICE AND COMMUNITY DEVELOPMENT
- **SS 1**: Basics, Rural Development Programmes, NGOs, Contribution of Youth  
- **SS 4**: Protection of Children and Women Safety  
- **SS 5**: Road / Rail Travel Safety  
- **SS 6**: New Initiatives  
- **SS 7**: Cyber and Mobile Security Awareness

**TOTAL : 30 PERIODS**

## NCC Credit Course Level 1* (AIR FORCE WING)

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### NCC GENERAL
- **NCC 1**: Aims, Objectives & Organization of NCC  
- **NCC 2**: Incentives  
- **NCC 3**: Duties of NCC Cadet  
- **NCC 4**: NCC Camps: Types & Conduct

### NATIONAL INTEGRATION AND AWARENESS
- **NI 1**: National Integration: Importance & Necessity  
- **NI 2**: Factors Affecting National Integration  
- **NI 3**: Unity in Diversity & Role of NCC in Nation Building  
- **NI 4**: Threats to National Security

### PERSONALITY DEVELOPMENT
- **PD 1**: Self-Awareness, Empathy, Critical & Creative Thinking, Decision Making and Problem Solving  
- **PD 2**: Communication Skills  
- **PD 3**: Group Discussion: Stress & Emotions

**TOTAL : 30 PERIODS**
### LEADERSHIP

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### SOCIAL SERVICE AND COMMUNITY DEVELOPMENT

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**TOTAL : 30 PERIODS**

### BN3204 TECHNICAL ENGLISH

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#### OBJECTIVES

- To familiarize first year students of planning with the fundamental aspects of English.
- To develop all the basic language skills - speaking, listening, reading, writing, presenting by giving sufficient practice in real life contexts.
- To enable the students to be competent in writing letters, email, and in vocabulary
- To enable the use of language to think, express analysis and communicate meaning
- To enhance the linguistic and communicative competence of students

#### UNIT I  INTRODUCING ONESELF

Listening: Listening and filling a form, listening to speeches by specialists from various branches of engineering and completing activities such as answering questions, identifying the main ideas of the listening text, style of the speaker (tone and tenor) – Speaking: Introducing oneself – introducing friend/ family - Reading: Descriptive passages (from newspapers / magazines)-Writing: Writing a paragraph (native place, school life)- Grammar: Simple present, present continuous – Vocabulary Development: One word substitution.

#### UNIT II  DIALOGUE WRITING

Listening: Listening to conversations (asking for and giving directions) –Speaking: making conversation using (asking for directions, making an enquiry), Role plays-dialogues- Reading: Reading a print interview and answering comprehension questions- Writing: Writing a checklist, Dialogue writing- Grammar: Simple past – question formation (Wh- questions, Yes or No questions, Tag questions)- Vocabulary Development: Stress shift, lexical items related to the theme of the given unit.

#### UNIT III  FORMAL LETTER WRITING

Listening: Listening to speeches by famous people and identifying the central message of the speech – answering multiple-choice questions)-Speaking: Giving short talks on a given topic Reading: Reading motivational essays on famous planners (answering open ended and closed questions)- Writing: Writing formal letters/ emails (Complaint letters)-Grammar: Future Tense forms of verbs, subject and verb agreement-Vocabulary Development: Collocations – Fixed expressions.

#### UNIT IV  WRITING COMPLAINT LETTERS

Listening: Listening to short talks (5 minutes duration and fill a table, gap-filling exercise) note taking/note making- Speaking: Small group discussion, giving recommendations-Reading: Reading problem – solution articles/essays drawn from various sources- Writing: Making recommendations – Writing a letter/ sending an email to the Editor- note making- Grammar: Modals – Phrasal verbs – cause and effect sentences- Vocabulary Development: Connectives, use of cohesive devices in writing, technical vocabulary

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UNIT V  WRITING DEFINITIONS AND PRODUCT DESCRIPTION

Listening: Listening to a product description (labeling and gap filling) exercises
Speaking: Describing a product and comparing it with other products
Reading: Reading graphical material for comparison (advertisements)
Writing: Writing Definitions (short and long) – compare paragraphs
Grammar: Adjectives – Degrees of comparison - compound nouns
Vocabulary Development: Use of discourse markers – suffixes (adjectival endings).

TOTAL: 30 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Build exposure to basic aspects of Technical English
CO2 Acquire and exhibit skills in speaking, listening, reading, writing
CO3 Build skill and confidence in everyday requirements of the English language
CO4 Able to write formal letters, email, articles etc.
CO5 Exhibit thorough understanding of Grammar and sound vocabulary
CO6 Able to express experience, portray through language

TEXT BOOKS


REFERENCES


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3- High 2-Moderate 1-Low
OBJECTIVES
- To remember the definition, classification, the basic principles of surveying
- To understand the basic principles, methods and laboratory exercises of Chain, Compass and Plane Table Surveying.
- To learn the methods of Levelling Surveys through laboratory exercises for the interpolation of contours, calculation earthwork and reservoir capacity.
- To analyse the heights and distances of the objects with theodolite
- To apply the knowledge of cadastral surveying for the description of the various geomorphic features and their implications in the site suitability analyses

UNIT I  FUNDAMENTALS OF SURVEYING  15
Definition, Classifications; Plane and Geodetic Surveying; Basic principles; Equipment and accessories for ranging and chaining; Methods of ranging, well-conditioned triangles; Problems in Obstacles; Chain traversing and plotting; Compass; Basic principles, Types; Bearing; System and conversions; Sources of errors and Local attraction; Plane table surveying - accessories and methods; Conventional Symbols; applications. Laboratory Exercises

UNIT II  LEVELLING AND CONTOURING  15
Level line Horizontal line; Datum; Bench marks; Levels and staves; temporary and permanent adjustments; Methods of levelling Fly levelling; Check levelling; Procedure in levelling; Booking; Reduction; Curvature and refraction; Reciprocal levelling; Precise levelling; Source of errors; applications. Contouring; Methods; Longitudinal and Cross Section; Plotting, Methods of interpolating Contours; Characteristics and uses of Contours; Areas enclosed by straight lines; Irregular figures; Planimeters; Volumes; Earthwork calculations; Capacity of Reservoirs; Mass Haul Diagrams. Laboratory Exercises

UNIT III  THEODOLITE SURVEYING AND COMPUTATIONS  15
Horizontal and vertical angle measurements by Theodolite – Heights and distances– Tacheometric surveying – Trigonometric levelling - Computation of cross sectional areas and volumes - Earthwork calculations - Mass haul diagrams

UNIT IV  CADASTRAL SURVEYING  15
History of cadastral survey, Future of Land Records, FMB Sketch Tax; Real Property Legal Cadastral Graphical and Numerical Cadastre, Legal Characteristics of Records, Torrens System. Cadastral map reproduction; Map projection for cadastral maps - Automated Cadastral map; Creation of Land Information System, Integrating LIS; Land Administration, Recent Trends; Map projection for cadastral maps. Laboratory Exercises

UNIT V  PHOTOGRAMMETRY  15
Photogrammetry as an Alternative Tool for Surveying; Introduction to Aerial Remote Sensing and Aerial Photographs, Classification; Principles of Stereoscopic Vision; Basic instruments - Stereopair, Pocket and Mirror Stereoscopes, Parallax Bars; Principles of Photogrammetry, Measurement of heights and Depths; Introduction to Digital Photogrammetry; Introduction to GPS; Introduction to Total Stations; Applications in urban and regional planning; Laboratory Exercises

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
- CO1 Introduce the rudiments of various surveying and its principles
- CO2 Imparts concepts of Theodolite Surveying and computation of area and volume calculation
- CO3 Demonstrate skills about the use of remote sensing and photointerpretation for the preparation of land use and land cover maps
CO4 Understand the procedure for finding the heights and distance using theodolite
CO5 Understand the basics of Electronic Surveying and total station.

TEXT BOOKS

REFERENCES
1. Wilfried Linder Digital Photogrammetry, Springe, 2008

CO-PO Mapping

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3- High 2-Moderate 1-Low

BN3212 ADVANCED VISUAL PLANNING TECHNIQUES

OBJECTIVES
- To understand the visual hierarchy, text to image relationships.
- To learn the most essential design applications within the creative industry
- To utilize best practices for presenting quantitative data using images.
- To understand and explore the similarities and differences between each application and exactly when to use them in planning projects
- To Identify and demonstrate the steps involved in planning a comprehensive presentation.

UNIT I BASICS OF 3D VISUALIZATION
UNIT II ROLE OF IMAGE AND GRAPHIC REPRESENTATIONS 15

UNIT III DEVELOPMENT OF VECTOR GRAPHICS AND VISUAL EFFECTS 15
Introduction to the software- draw in Illustrator- Work with colors and gradients- use of text and fonts- effects and patterns- Export- Digital sketching. Role of After Effects: Program layout- composition- Importing assets- Understanding of the available tools- texts and shapes- Layer scale Animating with keyframes- Enhancing visual effects.

UNIT IV DOCUMENTATION AND PRINT LAYOUT DESIGN 15
Overview of software- Design, format, edit- effectively place and edit text, images, and illustrations- formulate and apply color schemes- apply pre flighting and printing techniques and principles- Layout Applications.

UNIT V ROLE OF VIRTUAL REALITY IN URBAN PLANNING 15
Introduction to VR – Hardware and history of VR – tools and techniques – principles of VR – model of Illusions - application and challenges of VR in urban planning.

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Understand themcomprehend basic functions of various presentation tools and techniques.

CO2 Identify and describe the major functions of presentation software’s, to communicate their ideas.

CO3 Interpret the techniques and able to use presentation software’s to generate computer graphics.

CO4 Demonstrate mastery in utilizing inventive visual representations

CO5 Create professionally designed presentations.

CO6 Create and design using the advanced techniques of illustration, design, and documentation.

TEXT BOOKS

REFERENCES
BN3221 PLANNING STUDIO II: VILLAGE STUDY AND DEVELOPMENT

OBJECTIVES

- To know the historical evolution of a select village and understand its economic, social, spatial and political status of the people by the collection, analyses and interpretation of the appropriate data.
- To understand the hierarchy of the land administrative structure of the villages and evaluate the on-going development schemes of the Local, State, and the Central Governments.
- To propose a re-modelling pattern of rural settlements to improve economic opportunities and social facilities.
- To emphasis on the importance of planning, built form and open spaces that meet the aspirations of the community.
- To formulate a model village development plan using smart technology.

CONTENT

Rural Study:
Elements of Rural space: Understanding the various components associated in the formation of rural spaces.
Space Perception: Rural study would involve an analysis of a rural settlement by comprehending social, economic, physical and political aspects.
Transformation: This exercise would also focus on the understanding of the history of a village and its people, basis of spatial organisation of a village and its transformations over the years.
Influence of Social Structure: The study would also involve understanding of land administration in the village. Study of government schemes for the entire village would be undertaken. Students would be expected to develop sensitivity to development issues in a rural settlement.
Re-Modeling: To propose re-modelling of rural settlement pattern by adopting smart technologies and to improve social facilities.
Rural Development Plan: Rural Development plan for a model village.

OTAL : 150 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Ability to understand the concept of community and settlement evolution and the built environment as influenced by Socio-economic, Cultural, Environmental and Technical factors.
CO2 Ability to provide a sensitive approach to the design of the built environment taking into account the above-mentioned factors.
CO3 Conduct surveys of various types.
CO4 Prepare Development Plan of the Rural area, in consideration of alternative scenarios compatible with the existing status.
CO5  Map the socio-economic and cultural attributes of the rural area.
CO6  Carry out envisioning exercise with the stakeholders.

TEXT BOOKS

REFERENCES

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3- High 2-Moderate 1-Low

BN3301 PLANNING THEORY

OBJECTIVES
- To introduce planning theory and its critical aspects such as rationality, globalization, modernism, postmodernism, sustainability, participation, implementation and evaluation.
- To expose students to various cities forms.
- To understand the ways through which various forms of cities have taken under variegated societal regimes.
- To evaluate a planning problem and its solution and relate this to planning theory.
- To critically analyze the variety of approaches that have driven and characterized planning activity over time.

UNIT I PLANNING THEORY
Understanding the concept of theory in general; Definitions of theory in general; Definitions of planning theory including theory of planning, theory in planning and theory about planning; Significance of planning theory; situating planning- city reform- social reform- governance reform, various issues and their critical evaluation; progressive movement; historical contexts and conditions that gave rise to planning? Definition of paradigm and its various stages of development by Kuhn.
UNIT II  RATIONALITY IN PLANNING  9
Understanding rationality in planning and sustainability in planning; Introduction to categories of rationality and associated paradigms; Theories on rationality – Weber, Philip Johnson & R Brandt, instrumental-Value rationality (means-end rationality) & communicative rationality; rational planning model; criticism of rational planning model - physical planning; systems theory of planning, closed and open systems.

UNIT III  TYPES OF PLANNING APPROACHES  9
Introduction to synoptic, incremental, transactive, advocacy and radical theories of planning; relating SITAR with purpose and process of planning, reasoning and its various forms in planning – space, place and location; perspective planning versus inclusive planning.

UNIT IV  THEORIES OF URBAN GROWTH  9
Classical theories of urban structure – concentric zone theory, sector theory, multiple nuclei theory, etc; compact city approach: concept, advantages and limitations; city beautiful versus city functional; forms of cities in developed and developing world; types of cities - smart cities, compact cities, green cities, vibrant cities; sustainable cities; agglomerations of scale, economies of scale and urban agglomerations; location theories, bid rent theory; cross border regions (CBRs); cities in global south versus cities in the global north.

UNIT V  SUSTAINABILITY AND GLOBALIZATION  9
Sustainable urban development; evolution of the concept, components and processes; weak and strong sustainability; sustainable development goals; millennium development goals; Globalization and components of sustainable urban and regional development; globalization, modernism and postmodernism debate; pragmatism in planning; networked cities.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Summarize some of the core concepts of planning theory.
CO2 Enumerate the historical and contemporary development in the field of planning theory.
CO3 Recognize the significance of public participation in urban and regional planning process.
CO4 Assess the methods involved in Plan evaluation.
CO5 Distinguish a planning issue within a theoretical frame, through which an approach and its consequences can be deduced.
CO6 Prioritize competencies to understand planning issues for technically evaluating planning proposals.

TEXT BOOKS

REFERENCES
BN3302 QUANTITATIVE AND QUALITATIVE METHODS FOR PLANNERS

OBJECTIVES

- To develop a comprehensive understanding of different types of statistical data and their measures for effective analysis.
- To acquire practical skills in data collection, representation data using tabulation and graphical methods.
- To apply probability theory, estimation techniques, and hypothesis testing for making informed statistical inferences.
- To understand correlation and regression analysis, utilizing statistical software, to uncover relationships and make reliable predictions in planning scenarios.
- To understand various qualitative analysis techniques and their relevance for planning practice and research.

UNIT I INTRODUCTION TO STATISTICAL METHODS

Statistical Data- Types of Data: nominal, ordinal, interval and ratio; Discrete versus continuous data; Numerical data- properties and measures; Data collection, coding and decoding methods, tabulation and graphic representation of data; Frequency distribution; Measures of central tendencies: mean, median, mode; Measures of Dispersion: range, variance and standard deviation, skewed distribution, kurtosis; Introduction to spreadsheet and statistical software

UNIT II PROBABILITY, SAMPLING DISTRIBUTION AND TESTING OF HYPOTHESIS

Introduction to probability, Discrete random variables and probability distribution; Sampling distribution, Types of estimation; Point, interval, testing of hypothesis, statistical hypothesis, simple and composite tests of significance, null hypothesis, alternative hypothesis; Types of errors, level of significance

UNIT III CORRELATION AND REGRESSION ANALYSIS

Degree of correlation, Scatter Diagram, correlation analysis, correlation co-efficient, co-efficient of rank correlation, partial correlation analysis and multiple correlation, simple Linear and nonlinear regression, lines of regression, coefficient of regression; Multiple Regression Analysis; Use of SPSS and its applications in planning

UNIT IV MATHEMATICAL PROGRAMMING TECHNIQUES

Mathematical Programming models, linear programming problems, transportation problems, assignment problems, applications in planning

UNIT V QUALITATIVE METHODS

Dimensions of qualitative research; Designing qualitative research; Elementary association models and decision making; Terms and principles in qualitative data analysis; Content analysis; Narrative analysis; Discourse analysis for planning.

TOTAL : 45 PERIODS
COURSE OUTCOMES
Upon the completion of this course, the students would be able to:

CO1  Apply quantitative and qualitative techniques for planning analysis.
CO2  Implement tabulation and graphical representation techniques to visually depict data.
CO3  Analyze and interpret measures of central and measures of dispersion to gain insights into data distributions and variability
CO4  Apply probability theory, estimation techniques, and hypothesis testing to make statistical inferences
CO5  Apply the data analysis tools in planning and decision-making processes.
CO6  Evaluate the appropriateness and effectiveness of different statistical methods and techniques in planning, decision-making, and qualitative data analysis

TEXT BOOKS

REFERENCES

CO-PO Mapping

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BN3303  URBAN HOUSING AND PLANNING  L  T  P/S  C
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OBJECTIVES
- To provide students with an understanding about the nature of housing problems, current issues and aspects in housing.
- To expose students towards housing needs and how housing need is assessed.
- To enable the students in acquiring the skills and knowledge about the characteristics of a community.

44
To introduce students to government policies and development regulations.

To critically examine and understand how affect housing outcomes particularly for the poor.

UNIT I  INTRODUCTION
Housing: definition, housing as a verb and noun; Housing in relation to planning; Concepts of housing stock, need, demand, shortage; An overview of housing situation; Urban and rural housing scenario in India; Housing as a component of social and economic development; Key challenges of housing provision including housing for the poor, emergence of slums, unauthorised colonies, gentrification, displacement.

UNIT II  COMMUNITY AND HOUSING DEVELOPMENT PROCESS
Understanding a community, its characteristics, basic entitlements, strengths and weakness; housing tenure, aspects of informal tenure, socio economic implications behind the formation of slums, critical characteristics of slums, sites and services scheme, factors affecting residential location.

UNIT III  HOUSING PROJECT FORMULATION
Determinants of housing form including physical, social, economic, technical and aesthetic; Development options and housing; Housing costs, standards, densities and FAR; Housing projects and city level housing provisions

UNIT IV  CITY LEVEL HOUSING STUDIES
Components of housing, housing subsystems; Administrative, legal and financial frameworks for housing development; Processes of housing development; Analysis of housing stress; Concepts of affordability and target identification. Formal and non-formal housing; public and private sector housing development process; inner city housing.

UNIT V  POLICY AND LEGISLATIVE FRAMEWORK
Evolution of housing policy in India; Components of housing policy at national and state level; Approaches to housing provision for the poor, special groups and other vulnerable groups.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Identify the existing housing situation in a city.

CO2 Enumerate the socio-economic aspects in housing

CO3 Examine the national housing policies and other related housing provisions.

CO4 Infer the relationships between housing markets, housing standards and incomes.

CO5 Categorize the housing needs for the poor in India.

CO6 Formulate housing programmes and projects for the poor and their outcomes.

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BN3304 ENVIROMENTAL SCIENCE

OBJECTIVES

- To introduce the basic concepts of environment, ecosystems and biodiversity and emphasize on the biodiversity of India and its conservation.
- To impart knowledge on the causes, effects and control or prevention measures of environmental pollution and natural disasters.
- To facilitate the understanding of global and Indian scenario of renewable and nonrenewable resources, causes of their degradation and measures to preserve them.
- To familiarize the influence of societal use of resources on the environment and introduce the legal provisions.
- To inculcate the effect of population dynamics on human and environmental health issues.

UNIT I ENVIRONMENT, ECOSYSTEMS AND NATURAL RESOURCES

Environment: Definition, scope and importance of environment, need for public awareness; Ecosystem: Definition, scope and importance of ecosystem, classification, structure and function of an ecosystem, food chains, food web and ecological pyramids, flow of energy; Biogeochemical cycles Hydrological cycle, Phosphorous cycle, Nitrogen cycle. Biomagnifications. Natural resources: Classification of resources, Use and over utilization of surface and ground water, floods and droughts, dams, benefits and problems; Mineral resources: Use and exploitation; Land resources; Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy source, case studies.

UNIT II BIODIVERSITY, BIOTIC RESOURCES AND ENVIRONMENTAL POLLUTION

Biodiversity and biotic resources: Introduction, definition, genetic, species and ecosystem diversity; Value of biodiversity: Consumptive use, productive use, social, ethical, aesthetic and optional values; India as a mega diversity nation; Endangered and Endemic species, Hot spots of biodiversity. Threats to biodiversity: Habitat loss, poaching of wildlife, human-wildlife conflicts; Conservation of biodiversity: In situ and ex-situ conservation; National biodiversity act.

UNIT III ENVIRONMENTAL POLLUTION

Environmental pollution: Definition, causes and effects of air pollution, water pollution, soil pollution, noise pollution; Solid waste: Municipal solid waste management, composition and characteristics of e-waste and its management; Pollution control technologies: Waste water treatment methods, primary, secondary and tertiary; Concepts of bioremediation; Global environmental problems: Global Warming, Climate change, Sea level rise, ozone depletion, deforestation and desertification; International conventions / protocols: Earth summit, Kyoto protocol and Montreal protocol.

UNIT IV ENVIRONMENTAL LEGISLATIONS AND SUSTAINABLE DEVELOPMENT

Environmental legislations: Environmental protection act, air act1981, water act, forest act. municipal solid waste management and handling rules, biomedical waste management and handling rules2016, hazardous waste management and handling rules, Environmental impact assessment (EIA); Towards sustainable future: Concept of sustainable development, population and its explosion, crazy consumerism, environmental education, urban sprawl, concept of green building.
UNIT V ENVIRONMENTAL APPROACH IN PLANNING


TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1  Discover knowledge in ecological perspective and value of environment.
CO2  Distinguish the functions of environment, ecosystems and biodiversity and their conservation.
CO3  Outline the significance of various natural resources and its management.
CO4  Identify the causes, effects and environmental pollution and natural disasters and contribute to the preventive measures in the immediate society.
CO5  Apply the understanding of renewable and non-renewable resources and contribute to the sustainable measures to preserve them for future generations.
CO6  Recognize different forms of energy and apply them for suitable applications in for technological advancement and societal development.

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OBJECTIVES
- To understand the concepts of design thinking approaches
- To conduct design thinking sessions
- To apply both critical thinking and design thinking in parallel to solve problems
- To apply design thinking concepts in urban planning

UNIT I  INTRODUCTION TO DESIGN THINKING FRAMEWORK  6
Importance of Design Thinking – Phases in design thinking process – Five stage model – Non-linearity of the five-stage model – Applications of design thinking in Urban planning.

UNIT II  UNDERSTAND, OBSERVE AND DEFINE THE PROBLEM  9

UNIT III  IDEATION AND PROTOTYPING  9

UNIT IV  ITERATE AND EVALUATE  9
Need to test –User feedback - Conducting a user test – Kano Model- Desirability Testing -Guidelines for planning a test – How to test - Desirable, feasible and viable solutions – Iterate phase- Agility for Design Thinking

UNIT V  CONTEMPORARY URBAN ISSUES IN DESIGN THINKING  12
Case Studies: Citizen Sensing, Participatory and co – design approaches, Design Thinking for Smart City solutions: Bristol citizen sensing approach, Mexico City: Introducing a Bicycle-Sharing Network, design thinking approaches in urban redevelopment, urban design, etc.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Understand the importance of design thinking and its different phases.
CO2 Empathize with user situations and be able to define clear problem statements.
CO3 Apply different ideation methods and come with different feasible and viable ideas for solving the problem statements.
CO4 Create prototypes for clear understanding of the problem statement.
CO5 Evaluate the created prototypes and be able to iterate if the design does not meet the requirement
CO6 Apply design thinking principles and methodologies to effectively address complex planning challenges

TEXT BOOKS
REFERENCES


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3- High 2-Moderate 1-Low

BN3311 SPATIAL DATA INFRASTRUCTURE FOR PLANNING L T P/S C

OBJECTIVES

- To understand the necessity of spatial data in planning.
- To understand the use of Remote sensing in Planning.
- To enable students to use the GIS in solving Spatial Planning problems.
- To study GIS Software Packages and Advanced Concepts of GIS.

UNIT I INTRODUCTION TO SPATIAL DATA AND REMOTE SENSING 15

Spatial Data in Planning, Classification of spatial and non-spatial data, Maps and Spatial Information, limitations of typical DBMS and CAD packages, Introduction to Projection and Coordinate systems, Data base concepts – Primary key, Foreign Key.

UNIT II INTRODUCTIONS TO REMOTE SENSING 15

Definition, components of Remote Sensing, Merits and demerits of data collation between conventional and remote sensing methods, Electromagnetic Spectrum, Types of remote sensing platforms, Classification of satellites, Sun synchronous and Geosynchronous satellites, Lagrange point, Classification of remote sensors, Resolution concept, Orbital and sensor - Remote Sensing Product Availability -characteristics of live Indian earth observation satellites, LIDAR, UAV.
UNIT III  INTRODUCTION TO GIS  15
Introduction to Geographic Information Systems and its benefits, types of GIS Software’s, Input and Output Devices; overview of ARC GIS Software, Spatial Data types and creation in GIS, Spatial Information Security and Sharing; Database Structure for GIS, Vector and Raster Data Structures, Comparative Advantages and Disadvantages; Georeferencing of Raster, Digitization of spatial data – Editing spatial data, Attribute Data input and Editing, Creation of Base Maps Thematic Maps and Layout.

UNIT IV  SPATIAL ANALYSIS AND GEOPROCESSING  15
Introduction to Geoprocessing and Analyzing geospatial data, Preparation of data for Analysis, Geoprocessing vector data, Spatial analysis tools, Vector Analysis and Raster Analysis, Image Processing.

UNIT V  ADVANCED CONCEPTS IN GIS  15
Overlay functions in GIS, using attribute over spatial data in Modeling; case study-based land suitability analysis; Modeling service area for social infrastructures; impact analysis, introduction to Network Analysis.

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Explain the importance and requirement of Spatial Data in Planning.
CO2 Solve Urban Planning problems using Remote sensing technologies.
CO3 Analyse the various spatial planning issues using GIS technologies.
CO4 Examine the required maps and spatial data for different activities related to Planning.
CO5 Determine the requirement of various tools for spatial decision making.
CO6 Choose the appropriate spatial tool for specific problem in Urban Planning.

TEXT BOOKS

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3- High 2-Moderate 1-Low
OBJECTIVES

- To document a detailed portrait of the neighborhoods, tracing of induced or depending spatial activities, quality of life within them.
- To understand the likely impacts of the community based on rigorous spatial, socio-economic and its behavioral pattern.
- To define concrete measures to support desired change and to enhance possible potentials through qualitative and quantitative assessment.
- To experiment innovative participatory methods to achieve the collaborative planning.
- To assist in identifying problems, assets and threats, understanding causal dynamics behind observed patterns and trends, and, thereby address problems or maximize strengths.

CONTENT

Perspectives: Enhancing civic engagement and social impact, the studio draws together reflections from the Community Participation in Planning. This course focuses on neighborhood planning and central city revitalization. Community engagement and participation to spatial planning remains challenging, particularly given the diverse range of stakeholders and perspectives that now exist in contemporary society.

Dimensions: It views neighborhood planning as a community driven process that interweaves the physical, ecological, economic and social dimensions of neighborhood and city development into a single fabric, creating livable, sustainable urban environments. This course is particularly concerned with understanding the intersectionality of race, class, gender and the city building process and the ways in which planning aspects mediate socioeconomic inequalities and drive the transformation of underdeveloped communities of the transitional areas or the potential urban centres.

Focus: This Planning Studio focuses on community/neighborhood planning in a transitional area. While introducing students to spatial configuration of the environments that integrate the many cultural, spatial, architectural, and ecological issues of these places. This studio aims to further develop skills in conceptualization and visualization through consideration of area specific planning issues.

Interactive Collaboration with locals: It includes documentation and analysis of potential transitional areas, urban form and process, and explores community participation at the greater scale. The students should have an interactive collaboration with the local community to understand their issues, need and requirement.

Analysis and Synthesis: Diagnosis of a neighbourhood's characteristics is designed to assist in identifying problems, assets and threats, understanding causal dynamics behind observed patterns and trends, and, ultimately, generating specific ideas about how to address problems or maximize strengths. The studios shall use of planning techniques tools to identify the issues and requirements of the local community.

Plans, policies and proposals: Development of proposals is to be based on the baseline and detailed analyses outlined above and students should produce individual proposals to the above analysis carried.

TOTAL : 150 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Understand the various aspects of community planning and the importance of participatory approach.

CO2 Understand that by enabling local residents to create their own vision of their future communities

CO3 Identify strategies, mechanisms and interventions that help build quality neighbourhoods that are socially and economically diverse.
CO4 Interpret conceptual understanding of spatial transformation and its relevance with positive development.

CO5 Apply on the high-end capabilities of illustration, design and documentation of the study area

CO6 Formulate planning proposals for the study area by evaluating the benefits of participatory planning approach.

TEXT BOOKS
4. Developed by Community Places through the support of the BIG Lottery Fund, Community Planning Toolkit, 2012.

REFERENCES

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BN3401 CONTEMPORARY PLANNING THEORY L T P/S C
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OBJECTIVES
- To critically examine major theories of planning.
- To expose students towards alternative development theories.
- To equip students to apply theories to contemporary planning practice.
- To understand the significance of human development approach to urban and regional planning in India.
- To gain knowledge about collaborative and communicative planning.

UNIT I SCIENTIFIC RATIONALISM AND PLANNING 9
Defining instrumental rationality; Systems view of planning; Chief characteristics of Comprehensive Rational Planning Model and implications for planning practice; Systematic and systemic change.
UNIT II ADVOCACY PLANNING AND EQUITY PLANNING
Meaning, historical background and purposes of Advocacy Planning Model; Main features of Advocacy Planning Model; Relevance for planning practice; Equity and its various definitions; Major components of the Equity Planning Model; Implications on the role of planners in planning practice

UNIT III POLITICAL ECONOMY THEORIES
Defining the term political economy; Role of the state in planning; Role of the market in development, Economic planning vs Physical planning, Contributions of David Harvey, Manuel Castells and others; Richard Foglesong and the property contradiction.

UNIT IV COLLABORATIVE AND COMMUNICATIVE PLANNING
Various components of Collaborative Planning Model; Contributions of Patsy Healey and Judith Innes and others; Deliberative policy analysis; Role of trust in planning; Planning as persuasive storytelling; Pragmatic planning theory

UNIT V HUMAN DEVELOPMENT APPROACH
Defining functioning and capabilities; Exploring relevance of Amartya Sen and Nussbaum’s capabilities to planning; Role of planning and planners in enhancing capabilities of the poor; Capabilities perspective on slums and squatters; Feminist planning theory; Planning, caste and religion; Planning rights and responsibilities.

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Enumerate the use and value of theory in relation to planning practice
CO2 Recognize the wider historical context of planning theory and planning research
CO3 Critically analyze theoretical texts and place them in a wider context of theoretical traditions
CO4 Identify suitable existing planning and decision-making models for issues at hand.
CO5 Demonstrate the contexts in which planning emerged as a response to concerns with a range of circumstances over time.
CO6 Indicate the role of economy in planning.

TEXT BOOKS

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BN3402 URBAN PLANNING AND DEVELOPMENT  L  T  P/S  C  
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OBJECTIVES

- To provide students with a comprehensive understanding of urban planning and development
- To explore the relationships between cities and their regions.
- To familiarize students with various forms, concepts, and emerging theories in urban planning and development
- To equip students with the necessary knowledge and skills in urban planning, development, and management strategies
- To analyze and evaluate the planning and development efforts in major Indian cities

UNIT I INTRODUCTION

Introduction to urban, city, metropolis and related concepts, growth and scale. Complexities - social, economic, physical and administrative. Urbanization in India - general trends and distribution. Issues and problems in urban planning and development.

UNIT II CITY AND ITS REGION

City core vs periphery, Suburbanization, Transit oriented development, Global city and city regions, Area of influence, service area of a metropolis. Metropolitan region and delineation techniques, Metropolitan regional structures: characteristics, components and spatial patterns.

UNIT III FORMS, CONCEPTS AND EMERGING THEORIES

Metropolitan centralization and decentralization processes. Concepts of ring and satellite towns, counter-magnets. Forms and concepts for metropolitan planning and development - sheet, galaxy, core, star, ring and multi-nucleated. Their merits and demerits. Efficient functioning of metropolis. New urban theories, Neoliberalism, Behavioral approach and systems approach, Physical, social, economic, environmental, ecological, infrastructural, institutional sub systems; democracy and planning, socialism and planning, fascism and planning, urban renewal and segregation.

UNIT IV URBAN PLANNING, DEVELOPMENT AND MANAGEMENT STRATEGY

City/Metropolitan planning - spatial planning studies and surveys. Concepts and techniques of preparation of city plans. Application of management techniques in urban planning and development, Metropolitan planning, development and management strategies at regional and settlement levels. Tools and constraints in the implementation of metropolitan development plan in terms of administration, legal and financial aspects. Role and function of public participation
UNIT V             CASE STUDIES
Indian policies and program, collaborative governance in cities, Metropolitan planning, development and management in India. Appraisal of planning and development efforts in case of some of the metropolises, viz. Kolkata, Mumbai, Delhi and Chennai, etc

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Comprehend the knowledge and skills about urban planning and development
CO2 Analyze and interpret the relationships between cities and their regions
CO3 Assess the effectiveness of implementation tools and constraints
CO4 Apply management techniques in urban planning and development scenarios
CO5 Propose innovative solutions for efficient functioning of metropolises and sustainable urban development
CO6 Assess and evaluate the planning and development efforts in major Indian metropolises

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3- High 2- Moderate 1-Low
OBJECTIVES

- To understand the concept of Infrastructure Planning and Management.
- To educate about the provision of Water Supply, Sanitation and solid waste management.
- To understand the under lying concepts in concept of designing of treatment systems.
- To identify the roles and functions of Infrastructure planning in metropolitan cities.
- To make students capable of planning a suitable physical infrastructure facility for an Area.

UNIT I INTRODUCTION TO BASIC CONCEPTS

Infrastructure and its concepts, Role of physical planner in planning of utilities and services, objectives of utilities and services planning and its implications for public health and environmental protection. Introduction to Institutions related to infrastructure services and their standards.

UNIT II WATER SUPPLY SYSTEM

Water supply source, treatment system and types, Distribution system and types, Pressure requirements, water requirement for domestic and non-domestic purposes of settlements, firefighting, seasonal variation in demand and factors affecting water demand, standard of water demand percapita, variation of water demand and consumption, requirement of distribution and storage, pipe network analysis. Legal and government policy for urban and rural water supply. Case study discussion on innovative methods.

UNIT III STORM WATER SYSTEMS

Estimating storm run-off, Dry Weather Flow, and Strom weather, run-off coefficient, rainfall intensity, time of concentration; Gravity flow, hydraulic gradient line, Manning’s formula and nomographs, full flow and partial flow; layout and design of storm water system, General considerations, inlets, self-cleansing velocity non-scoring velocity, physical layout-design principles, data requirement; Rain Water Harvesting.

UNIT IV SANITATION AND SEWER SYSTEMS

Methods of sanitations; On-site detention, Off-site and on-site technology up gradation; Low-cost appropriate technologies; standards for Indian cities; Sanitary sewer system network and layout planning, Sewage disposal methods, location criteria and capacity; sewerage Treatment system and technologies, DEWATS, Case study of innovative approaches; financing and cost recovery for sewer system.

UNIT V SOLID WASTE MANAGEMENT

Solid waste and types Municipal, solid waste Management Rules, Stages of solid waste management and current practices, Methods of solid waste management, collection, transportation and disposal; Land filling and composting, pre and post treatment, location and cost aspects of different methods of solid waste disposal systems; New methods in solid waste treatment, Community participation and involvement of NGOs in efficient solid waste management, Case study of innovative approaches.

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

- CO1 Explain about the standards for provision of physical infrastructure facilities.
- CO2 Summarize the existing rules and regulation for provision of physical infrastructure facilities.
- CO3 Outline the various principles, of water supply, sewerage system, storm water drainage and solid waste management.
- CO4 Assess the issues and problem related to provision of facilities like water supply, sewerage system, storm water drainage and solid waste management for a town/city.
- CO5 Able to plan for a water supply, sewerage system, storm water drainage and solid waste management for a town/city.
- CO6 Plan for a water supply, sewerage system, storm water drainage and solid waste management for a town/city.
TEXT BOOKS

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BN3404 URBAN GOVERNANCE  L  T  P/S  C  3 0 0 3

OBJECTIVES
- To introduce students to key concepts in, and approaches to, politics in cities, as these have emerged and developed over time.
- To teach students how to analyze and comprehend public policies including planning policies with a particular focus on India.
- To critically understand how seemingly ‘marginal’, ‘radical’ or “innocuous” practices provide powerful insights into thinking about alternative policy/political frameworks.
- To develop critical assessment and analytical skills to connect theory to practice to outcomes.
- To analyze critically the politics of planning in India.

UNIT I URBAN POLITICS IN PLANNING
Urban inequity, challenging social/spatial inequity, cities of the global south, Political institutions at center, state and local political economy; Politics of the state and bureaucracy; Politics and emergence of civil society; Regeneration and redevelopment politics; Political decision making processes.

UNIT II THE CONCEPT OF GOVERNANCE
Evolution of the concept of governance, critical approaches to governance, Types of democracy and significance of decentralization (political, administrative and fiscal); good governance New
institutionalism and networks in governance; New public management, Transparency and accountability, Concept of participatory governance. Political economy of urban governance.

UNIT III  LOCAL SELF GOVERNMENT  9
Models of local government, challenges of local government institutions in India; The need and empowerment of local government; Good governance initiatives in local governments; Decentralized planning in India and its various models; participatory planning; participatory budgeting.

UNIT IV  GOVERNANCE INNOVATIONS  9
The concept of E-governance, M-governance, SDI governance and their application in disaster management, public service delivery and efficient local governance.

UNIT V  URBANIZATION AND MULTI LEVEL GOVERNANCE  9
Multi-level governance: Context, institutional types and critiques; Globalization and Global Governance; Global civil society and global social movement. Rethinking governance through radical practices

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Ability to identify the relationships among society, economy, government and land in the urban context.

CO2 Appreciate the role of urban politics in policy-making in cities.

CO3 Formulate an analytical framework in order to discuss the normative ideals of what cities should be.

CO4 Illustrate comparative policy research and best practices of urban governance.

CO5 Demonstrate the contexts in which planning emerged as a response to concerns with a range of circumstances over time.

CO6 Formulate policy solutions to the problems faced in a city.

TEXT BOOKS

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BN3405 TECHNICAL REPORT WRITING

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OBJECTIVES
1. To develop effective written and communication skills
2. To enhance reading skills for extracting specific information and understanding the main ideas in various forms of written communication
3. To develop proficiency in English comprehension, paraphrasing, summarizing, and editing for improved written expression.
4. To learn the process of undertaking a literature review, including identifying credible sources, reading and critically analyzing literature, and applying appropriate referencing styles.
5. To understand the elements and format of reports and gain knowledge of indexing and available reference materials for effective report writing.

UNIT I WRITTEN COMMUNICATION
Language and communication, differences between speech and writing, distinct features of speech, distinct features of writing, Reading Skills to find out particular information and get the gist through notes, letters, articles, reports. English comprehension, paraphrasing, summarizing and editing.

UNIT II UNDERTAKING LITERATURE REVIEW
Identification of credible journals, books, reports, etc.; How to read literature; Styles of referencing such as Harvard Style of Referencing, APA, etc., Understanding an argument, developing your own interpretations What is an argument, validity and strength of arguments, common fallacies of reasoning, use and abuse of language in reasoning

UNIT III ELEMENTS OF REPORTS
Type; Types of reports, difference between technical, scientific, legal and other types of communication; specific characteristics of writing technical reports.

UNIT IV FORMAT OF A REPORT
Preliminaries: contents, preface, acknowledgements, list of tables and figures; Key words and indexing, Body: introduction, sections and sub-sections, or chapters, conclusions and recommendations; Appendices; References; knowledge of indexing and available reference materials

UNIT V WRITING A REPORT
Developing a coherent structure for a term paper and report; Introductory, developmental, transitional and concluding paragraphs, linguistic unity, coherence and cohesion, descriptive, narrative, expository and argumentative writing. Report writing

TOTAL : 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Demonstrate knowledge and understanding of the communication skills in speech and writing

CO2 Comprehend and extract specific information from various written materials.

CO3 Apply effective reading strategies to identify the main ideas and summarize written information accurately.

CO4 Evaluate the report's quality and validity, identifying reasoning fallacies and detecting language misuse.

CO5 Analyze and critically evaluate the credibility and relevance of different sources for conducting a literature review.

CO6 Synthesize information from multiple sources to develop a coherent and well-structured report

TEXT BOOKS

REFERENCES

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BN3411 URBAN MOBILITY AND THE CITY  

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<td>To learn about the basics of transportation Planning.</td>
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<td>To understand the traffic and travel characteristics of road.</td>
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<td>To understand about mobility and land use and their interaction.</td>
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<td>To learn about the different surveys in transportation planning.</td>
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<td>To study about the different models in transportation Planning.</td>
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UNIT I  

| BASICS OF TRANSPORTATION PLANNING |  |
|-----------------------------------| |
| Definition, scope and components of transportation planning; Importance of transportation in economic, political and social development; Characteristics and role of various forms of transport - |

60
roadways, railways, waterways and airways; Transport policies and programmes in India before and after independence; Historical perspective of road development in India; Scope and content of 20 year plan road development plans; Current trends in road development; accessibility and priority index in traffic network planning Socio economic significance of transport planning; Cardinal principles of transport planning: economy, efficiency, equity, accessibility, environmental sustainability

UNIT II TRAFFIC AND TRAVEL CHARACTERISTICS 15
Traffic and travel characteristics: Relation of traffic volume, concentration and speed; Traffic as a function of land use; Significance of road user's behaviour and vehicular characteristics; Hierarchy of roads – regional and urban; Geometric design of roads – cross and longitudinal sections and their components; Geometric design standards; Design considerations and guidelines; Capacity and level of service of road, Design of Intersections, At grade intersection, Uncontrolled, Channelization, Rotary, Traffic Signal Control, Signal Co-ordination, Grade Separated Interchanges ,Types , Design and Analysis.

UNIT III UNDERSTANDING MOBILITY AND LAND USE – TRANSPORT INTERACTION 10
Movement vs access; Functions of the street: speed and place; Street pattern and urban form; Accessibility: concept and mapping; Land use and transport interaction; Traffic and transport as a service: public transport, para-transit; Various approaches to parking, Planning for sustainable mobility, the streets of the future, sustainable, cost-effective and feasible solution to mobility issues in cities.

UNIT IV TRANSPORTATION PLANNING SURVEYS 20
Traffic surveys: design of format, sample size; volume count / origin-destination and speed and delay survey; Collation, consolidation, analysis and interpretation of travel data; Parking studies and accident surveys, conduct of field survey and presentation of data and reports.

UNIT V PLANNING AND MANAGEMENT OF TRANSPORT SYSTEM 15
Stages of transport planning process: trip generation, trip distribution, modal split and trip assignment; Types of Land Use Modeling – Lowery & Garin model and Applications –LUT Conception with Dynamic Simulation Modeling - Case Studies. Introduction to public transport; Transit oriented development, NMT, Planning the streets for future.

TOTAL: 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Outline basics of transportation Planning and different transportation polices.
CO2 Build knowledge about the traffic and Travel characteristics in transportation.
CO3 Identify the interaction between urban mobility and land use and able to provide sustainable solution for Mobility.
CO4 Formulate various traffic surveys, analysis and present it various formats.
CO5 Determine the amount of intervention required in different stages of transportation planning.
CO6 Develop an interaction between land use and Transportation.

TEXT BOOKS

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### NCC Credit Course Level 2*

**NX3451 (ARMY WING) NCC Credit Course Level - II**

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**TOTAL: 45 PERIODS**
### NCC Credit Course Level 2*

#### NX3452  
(NAVAL WING) NCC Credit Course Level - II  

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#### DISASTER MANAGEMENT

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#### ENVIRONMENTAL AWARENESS & CONSERVATION

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#### NAVAL ORIENTATION

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#### BORDER & COASTAL AREAS

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**TOTAL: 45 PERIODS**

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### NCC Credit Course Level 2*

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EA 1 Environmental Awareness and Conservation  3

GENERAL AWARENESS  4
GA 1 General Knowledge  4

GENERAL SERVICE KNOWLEDGE  6
GSK 1 Armed Forces & IAF Capsule  2
GSK 2 Modes of Entry in IAF, Civil Aviation  2
GSK 3 Aircrafts - Types, Capabilities & Role  2

ADVENTURE  1
AD 1 Introduction to Adventure Activities  1

BORDER & COASTAL AREAS  2
BCA 1 History, Geography & Topography of Border/Coastal areas  2

TOTAL: 45 PERIODS

BN3421 PLANNING STUDIO IV : LAND USE AND TRANSPORTATION PLANNING

OBJECTIVES

- To understand the interrelationship between transportation and land uses, and related economic, social and environmental issue.
- To understand the difference between travel demand and transport supply.
- To learn techniques for assessment, mitigation and management of traffic impact of current and proposed development.
- To understand key techniques for management and enhancement of transport supply.
- To promote and make way for sustainable mobility patterns, improve accessibility and promote livability.

CONTENT

Basic surveys: Conduct, analyse, interpret and produce reports on various traffic and transport surveys; road and intersection inventory, traffic volume counts, origin destination, spot speed, speed and delay, parking, pedestrian, public transport surveys, etc. Understand traffic and transportation related problems at the local/subcity level, and develop appropriate plans.

Travel Patterns Study: Analysing the mobility profile of residents and workers within an area, modes used, trip lengths, trip purpose, etc. Origin destination survey includes analysis by comparing travel patterns with socio economic condition, housing typologies and private vehicle ownership. This will also include public opinion on traffic, noise, accessibility and local environment.

Assessment of Travel Demand: Understanding of basic techniques for assessment of traffic impact of existing uses; Surveys and analysis related to traffic generation rates and patterns, parking demand, non-motorized traffic, traffic conditions on surrounding roads and intersections; Basic principles of travel demand modelling could be used to simulate scenarios to test how change in the intensity of use of land could impact traffic in an area.

Transport Supply Analysis: Diagnose the key transportation issues in an area by undertaking studies for analysing traffic volume, journey speed, parking, pedestrian movement and access to public transport. A study about the adequacy of transport infrastructure vis-à-vis travel demand studies undertaken earlier.

Impact of transport on local environment: Analysing noise, emissions, safety and quality of life; Developing indicators; Consideration of the needs of excluded groups such as children, elderly and women; Development of strategies consisting of planning, design and management measures.

TOTAL : 150 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Appreciate urban form and design from the perspective of travel behaviour research.
CO2 Demonstrate skills and knowledge to prepare traffic and transportation plan, circulation plan or traffic management plan for a human settlement.
CO3 Elucidate evidence-based approaches to evaluate land use and transportation systems performance.
CO4 Analyse the impacts of transportation infrastructure on land development and interpret real traffic and transportation problems.
CO5 Formulate policies aimed to influence the transportation-land use interaction space.
CO6 Value the ideology of preparation of integrated land use and transportation planning by considering stakeholder’s needs, issues, potential and priorities.

TEXTBOOKS

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3- High 2-Moderate 1-Low
OBJECTIVES

- To understand the basic concepts of law and relevant constitutional provisions for urban and regional planning
- To know about the Indian constitution and the legal tools connected with regional planning
- To know about the amendments and its implications in planning laws
- To understand about the laws related to third party legislation
- To analyse about urban and regional planning statutes and legal frameworks for land acquisition and development.

UNIT I  CONCEPT OF LAW  
Sources of law including custom, legislation and precedent, ordinance, bill, act, regulations and byelaws; Significance of law and its relationship to urban and regional planning; Plan Preparation and Modification process, Case laws related to plan preparation, change of land use, implementation and enforcement.

UNIT II  INDIAN CONSTITUTION  
Concepts and contents of the Indian Constitution, article 21; Rights and their implications for planning; Fundamental provisions regarding property rights; Overview of legal tools connected with urban and regional planning and development; Model town planning laws.

UNIT III  STATUTORY FRAMEWORK FOR PLANNING AND DEVELOPMENT LAW  
Evolution of town planning legislation, town planning laws, town planning as a state subject; 73rd and 74th amendment and its implications for planning law; Current amendments in planning and development laws; Related laws such as environment and infrastructure laws.

UNIT IV  STATUTORY FRAMEWORK FOR LAND ACQUISITION AND ASSEMBLY  
Laws related to land assembly by public and private parties; Land acquisition legislations, eminent domain, police powers and concept of public purpose; Case studies highlighting nature of contentions, parties in dispute and decisions in specific planning disputes.

UNIT V  REAL ESTATE AND OTHER RELATED LAWS FOR DEVELOPMENT  
Real Estate (Regulation and Development) Act, 2016 and other relevant acts at a particular time, for example, Special Investment Region Act, Community Participation Law

TOTAL: 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Acquire knowledge about sources of law and basic terminologies in law.
CO2 Show knowledge about the implications of relevant articles of the Constitution of India on town planning.
CO3 Show understanding about the statutory nature of town and country planning.
CO4 Examine and analyse specific case laws on land, planning and development.
CO5 Demonstrate knowledge about the role of statutory master plans in translating constitutional provisions.

TEXT BOOKS


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BN3502 INFRASTRUCTURE PLANNING

OBJECTIVES
- To study about social infrastructure requirement.
- To understand the requirement of infrastructure for Rural area.
- To study requirement and Planning issues for Regional Infrastructure.
- To understand the infrastructure development polices at state and central level.
- To study about the different models for provision of infrastructure in an area.

UNIT I PLANNING FOR SOCIAL INFRASTRUCTURE 8
Level and types of social infrastructure- education, health, safety, security, and other public services. Policy context- comparison of existing norms and standards for social infrastructure across states, and national guidelines. Sustainable Development Goals and quality of life. Social infrastructure levels at city and regional level.

UNIT II INFRASTRUCTURE PLANNING FOR RURAL AREA 12
Nature and scope of infrastructure planning for rural area; Issues in providing infrastructure. Policies, Programmes and Schemes; Public distribution system, Water Supply and sanitation, Infrastructure requirements for agriculture, processing, grading, packing, storage and distribution system. Irrigation network and its importance, Infrastructure to promote Forestry, Animal husbandry, Poultry, Fisheries, Piggeries, Sericulture, Beekeeping etc. Infrastructure for energy network to develop rural areas.

UNIT III INFRASTRUCTURE FOR REGIONAL DEVELOPMENT 9
Importance of infrastructure in regional perspective, Integrated infrastructure planning process, regional infrastructure in the context of different level of regions. Norms & Standards. Regional infrastructure constraints, current practices for regional infrastructure development. Planning for infrastructure in a region – Transport, water resources, telecommunication, electricity, energy resources, agriculture market, fertilizer, implements, research and development, extension services. Planning considerations of regional infrastructure, airports, seaports, trade centres, etc.

UNIT IV PLANNING FOR POWER 8
Power, sources of generation, Transmission and distribution, national grid, high tension lines and buffer; gas storage and supply, telecommunication lines, integration of underground infrastructure planning with local circulation planning and design.
UNIT V MODELS OF INFRASTRUCTURE FINANCING

Models of Infrastructure Financing, PPP model for infrastructure financing, BOT, BOOT, BOO, LDOT, BDOT, Problems and Issues emerging in PPP models, LDOT models, Fully Privatized model, Partially privatized models; Urban Infrastructure models in Water Supply, SWM, Sanitation- Case studies in Indian Context.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Understand the required social infrastructure facilities for a town and at regional level.
CO2 Acquire knowledge about the infrastructure facilities required for the rural area.
CO3 Able to plan for rural infrastructure facilities required for a rural area based upon their requirements.
CO4 Understand the requirement of facilities and can plan for regional level infrastructure facilities.
CO5 Understand the different infrastructure development policies.
CO6 Study on different financing models available for implementation of infrastructure projects.

TEXT BOOKS

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OBJECTIVES

- To understand the dimensions of urban poverty, and analyze the causes and consequences of urban poverty, with a specific focus on slums.
- To examine the theoretical perspectives on poverty alleviation, trace the evolution of poverty alleviation approaches globally and in India.
- To comprehend the concept and significance of the informal sector and analyze the socio-economic deprivation associated with the informal sector and its interdependence with formal networks.
- To examine the characteristics of migrants and their impact on the growth of the informal sector and understand the implications of migration for physical planning.
- To evaluate implications of policy framework and planning provisions in addressing informal sector for city planning through case studies from India and other developing countries.

UNIT I  URBAN POVERTY  9
Dimensions of urban poverty, measurement of poverty, magnitude of problem; MDGs and SDGs, defining the poverty line, urban versus rural poverty; Causes and consequences of urban poverty, slums; Urban poverty alleviation programmes

UNIT II  APPROACHES FOR ALLEVIATION OF URBAN POVERTY  9
Theoretical perspectives on poverty alleviation; Evolution of approach to poverty alleviation in global context and in India; Policies for the urban poor in India since independence; Five year plans and current policy approaches.

UNIT III  CONCEPT, CAUSES AND CONSEQUENCES OF INFORMAL SECTOR  9
Concept of informal sector and informality; Types of informal sector and role of informal sector in cities, Spatial focus on informal sector; Socio-economic deprivation and informal sector; Poverty and informality in historic areas; Policies and practices in dealing with the informal sector in India e.g. National Policy on Urban Street Vendors, NCEUS, others; Informal and formal networks and interdependence.

UNIT IV  MIGRATORY IMPULSES AND IMPACT ON INFORMAL SECTOR  9
Characteristics of migrants and their association with the growth of the informal sector. Socio-economic deprivation and informal sector. Role of the informal sector in housing stock, economy, commercial activities, etc. Implications in physical planning.

UNIT V  PLANNING FOR INFORMAL SECTOR  9
Policy framework for addressing the challenges of informal economy; Planning provisions and norms; Policies governing informal sectors of economy e.g. household industry, street vending, etc. and its implications for city planning. Case studies from India and other developing countries.

TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Comprehend the dimensions of urban poverty.
CO2 Understand the causes, consequences, and specific challenges associated with urban poverty, particularly in slum areas.
CO3 Apply theoretical perspectives on poverty alleviation to analyze and propose effective approaches for addressing urban poverty in India and other regions of the world.
CO4 Evaluate the policy’s role in socio-economic deprivation and practices aimed at managing the informal sector in India.
CO5 Analyze and integrate the complex dynamics between migration and the growth of the informal sector and propose strategies for integrating the informal sector into physical planning.
CO6 Evaluate policy framework, analyze sector-specific policies and examine case studies to identify best practices and lessons for informal sector governance.
TEXT BOOKS

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BN3504 PROJECT FORMULATION, APPRAISAL AND MANAGEMENT

OBJECTIVES
- To expose students to techniques of project formulation, appraisal and management.
- To provide inputs to students for learning project evaluation, monitoring and implementation.
- To understand the financial management techniques to monitor and control project.
- To understand the network analysis
- To understand the cost benefit analysis for various regional development projects

UNIT I INTRODUCTION TO PROJECT PLANNING
The concept of projects, Importance of project formulation, appraisal and management; reasons for shortfall in its performance; scientific management, lifecycle of project; detailed project report, and feasibility studies; techniques of financial appraisal, payback period, IRR, DCF, NPV, CBR.

UNIT II PROJECT FORMULATION
Definition, objectives; Stages of project formulation and their significance; Methodology for project identification and formulation; Feasibility studies, input analysis, financial cost-benefit analysis, social-cost benefit analysis; Project appraisal and report.
UNIT III  PROJECT MANAGEMENT  9
Project characteristics; techniques of management, importance of project management; reasons for shortfall in performances; concepts of project organization, contracting, procurement and recruitment budget; fund flow statement and stabilization; organization of project, matrix organization, task forces, project teams; monitor and control project; tools and techniques for project management.

UNIT IV  PRE IMPLEMENTATION PLANNING PHASE  9
Work break down structure; Network analysis; CPM PERT; resource levelling and allocation; time cost trade off aspects.

UNIT V  PROJECT IMPLEMENTATION, MONITORING AND EVALUATION  9
Project implementation, stages of implementation, Teamwork, actors in project implementation; Project monitoring: meaning objectives and significance; Monitoring techniques: integrated reporting, Milestones, time and cost overrun and under runs, unit index techniques; Project evaluation: meaning, objectives, scope, stages, approach and steps, Life of a project; Techniques of project evaluation: input analysis, financial cost- benefit analysis, social-cost benefit analysis; case studies in urban and regional development projects.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1  To show knowledge about evaluating and monitoring of implementation of development projects.
CO2  To demonstrate skills for the preparation of detailed reports of development projects.
CO3  Importance and methodology for project formulation and its application.
CO4  Stages in network analysis and resource allocation.
CO5  To know about the input analysis, financial cost- benefit analysis, social-cost benefit analysis in regional projects.
CO6  Technology and techniques involved in private sector participation in infrastructure projects.

TEXT BOOKS

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### BN3505 PLANNING POLICIES AND STRATEGIES

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#### OBJECTIVES

- Develop a comprehensive understanding of Policy analysis, prescription, implementation and Evaluation
- Apply Analytical frameworks, methods, and techniques to analyze and solve complex policy problems.
- Assess the role of policy analysis in the policy making process and its impact on policy outcomes
- Identify and address challenges and gaps in policy implementation and propose effective solutions.
- Evaluate the effectiveness and impacts of policies and recommend improvements of policy formulation and implementation.

#### UNIT I POLICY ANALYSIS


#### UNIT II PRESCRIBING PREFERRED POLICIES

Prescription of Policy Analysis, Approaches to Prescription, Methods and Techniques for Prescription, Case studies.

#### UNIT III POLICY IMPLEMENTATION


#### UNIT IV POLICY EVALUATION


#### UNIT V CASE STUDIES OF POLICIES


TOTAL: 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

- Demonstrate a thorough understanding of policy analysis, including the multidisciplinary frame work, stages and practices
- Apply various approaches and techniques for prescribing preferred policies based on rigorous analysis and evaluation.
- Analyze different models and approaches to policy implementation, considering interorganizational relations and global policy agendas.
- Assess the performance and impacts of policies using appropriate evaluation techniques, criteria and processes.
- Apply policy analysis and implementation concepts to real-world case studies, including specific national policies
- Develop critical thinking and problem-solving skills in addressing policy challenges and proposing effective solutions

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BN3521 PLANNING STUDIO V: MASTER PLAN

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OBJECTIVES
- Synthesize knowledge and skills obtained in the core courses in planning in order to prepare a plan for an urban settlement.
- Able understand various types and hierarchy of urban Plans, their Characteristics and Contents.
Elucidate students to prepare a sector integrated comprehensive development plan of a town or a city or a metropolis.
Able to understand the importance and constrains of process of plan formulation.
Evolve Development Policies; Land Use Plan, priorities and Implementation mechanism for a selected Urban Area.

CONTENT

Approach: Appreciate the need of master plan in cogitation of city level issues.

Studying development plans: The study shall involve understanding of contents of various types of development plans and explore their foci.

Secondary Source Information for a Selected City or Town: Identification and preparation of secondary source information of the towns or cities selected for the study.

Organization of field surveys: Visit to the case study area, collection of primary and secondary data and information on various aspects such as demography, social, economic, housing, transportation, etc. Conduct of primary and secondary surveys. Interaction with various stakeholders.


Plan, policies and proposals: Preparation of Land use plan, policies, proposals and detailed plan document with respect to the identification of priorities and action areas. Phasing and monitoring. Governance structures for implementation.

TOTAL : 150 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

1. Able to gain the knowledge on approaches adopted in various development plans through case studies and literature reviews.
2. Elucidate the delineation of case study area and collection of data on various physical, social and economic aspects.
3. To analyze the existing policy and planning literature on urban development plans, and to examine field survey data and information.
4. Able to vision the ideology of preparation of comprehensive plan by considering stakeholder’s needs, issues, potential and priorities.
5. To plan and propose different future scenarios, priorities of development, action areas, phasing and monitoring, and to propose governance structures for the implementation of the plan.
6. To produce spatial policies, and to make planning proposals along with a land use plan for a selected urban settlement.

TEXT BOOKS


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BN3601 PLANNING PRACTICE AND PROFESSIONAL ETHICS

OBJECTIVES
- To develop sensitivity to ethical issues in planning.
- To develop an understanding of processes of ethical decision making.
- To understand about ethical dilemmas.
- To understand the ethical values in planning.
- To understand about code of professional conduct.

UNIT I UNDERSTANDING ETHICS
Defining ethics; Human values and moral reasoning; Perspectives on ethics; Branches of ethics; Ethics and social identities; Defining the idea of a profession and ethics in the modern professions.

UNIT II UNDERSTANDING ETHICAL DECISION MAKING
Understanding human behaviour; Substance of ethical behaviour; Development stages of ethical behaviour; Ethical decision making: power of frames, routines and strong situations; Examples of ethical and unethical decision making in planning organisations.

UNIT III DEVELOPMENT OF ETHICS IN PLANNING
Distinction between professional ethics, ethics in planning; Learning from theory; Understanding contributions of the key planning scholars to planning ethics.

UNIT IV ETHICAL DILEMMAS IN PLANNING PRACTICE
Defining and recognising ethical dilemmas; Planning practice and ethical dilemmas, resolution of ethical dilemmas; Cases of ethical dilemmas in planning; Code of professional conduct; Examples of codes of conduct of different countries including India.

UNIT V ETHICS
Canons of ethics; ethics of virtue; ethics of duty; ethics of responsibility; Work ethics; Professional ethics; Ethics in planning profession, research and education.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Demonstrate familiarity with different philosophical approaches to ethical behaviour
CO2 Show knowledge about the various elements of ethical reasoning.
CO3 Stages in the development of ethical behavior in planning project
CO4 Develop the ability to recognize an ethical dilemma.
CO5 Understand the knowledge about the ethical decision making processes.
CO6 Understand the importance of ethics in planning and code of professional conduct

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BN3602 LAND ECONOMICS AND LAND THEORY L T P/S C 3 0 0 3

OBJECTIVES
- To develop a comprehensive understanding of the concepts and principles of land economics
- To analyze the economic principles underlying land use and explore the relationship between economic rent, land use, and land values
- To equip students with the knowledge and techniques necessary for land valuation
- To provide an overview of the real estate market, including the laws and regulations governing the sector
- To analyze locational decisions for various land uses

UNIT I INTRODUCTION TO LAND ECONOMICS 9
Economics concepts of land, objectives and scope of land economics; relevance for spatial planning; economic principles of land use; economic rent, land use and land values, demand forecasting, factors affecting land supply and demand market mechanism and land use pattern.

UNIT II LAND PRICING 9
Definition, principles of real estate value concepts, The status of land and property ownership in the Constitution of India, types of land, ownership and various land tenure options. Land valuation techniques, land pricing, subsidies, auctions; type of development, land price index, land Information System (LIS), land records

UNIT III REAL ESTATE MARKET 9
Introduction to various laws related to real estate - Real Estate (Regulation and Development) Act, 2016, Real estate investment and portfolio management, FDI, role of NRI and PIOs.
UNIT IV FACTORS INFLUENCING LOCATIONAL DECISIONS
Analysis of location of specific uses like residential, industrial, commercial and institutional in the light of location theories in intra-regional and inter-regional context

UNIT V FACTORS INFLUENCING ECONOMIC DECISIONS
Techniques of cost benefit analysis of urban development programme, social costs and benefits, monetization of various costs and benefits, difference between financial and economic analysis.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Understand the concepts, principles, and theories of land economics
CO2 Interpret and comprehend the economic principles underlying land use
CO3 Apply their knowledge of land valuation techniques, pricing mechanisms
CO4 Critically analyze the laws and regulations related to the real estate market
CO5 Integrate location theories and factors influencing locational decisions to assess and propose optimal land use.
CO6 Evaluate and assess the economic implications of urban development programs and projects.

TEXT BOOKS

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BN3603 BASICS OF URBAN DESIGN

OBJECTIVES
- To introduce the fundamental concepts and principles of urban design as an interface between architecture and planning.
- To explore the elements that shape urban form, including masses, voids, building typology, scale, harmony, and urban transportation.
• To analyze the physical and non-physical determinants of urban forms and examine case studies of urban design characteristics in different cities.
• To delve into urban studies topics such as urban decay, place-making, heritage, suburban sprawl, and the agencies responsible for urban design.
• To develop an understanding of contemporary urbanism, including current issues, solutions, and best practices in urban design, with a focus on policies and regulations.

UNIT I INTRODUCTION TO URBAN DESIGN
Urban design as interface between architecture and planning. City as a three-dimensional entity. Study of volumes and open spaces at all spatial levels. A brief historical review of the development of the urban design discipline and principles.

UNIT II ELEMENTS OF URBAN DESIGN
Urban form as determined by inter-play of masses, voids, building typology. Scale, harmony, symmetry, colour, texture, light and shade. Dominance, height, urban signage and graphics. Organization of spaces and their articulation in the form of squares, streets, vistas and focal points. Image of the city and its components such as edges, paths, landmarks, street features, sky-line, etc. Urban transportation.

UNIT III PHYSICAL AND NON-PHYSICAL DETERMINANTS OF URBAN FORMS
Activity and the morphology of places. Form, size and structure of cities and the related geometry co-related with their determinants. Case studies of urban design characteristics of cities in India and abroad. Other related issues for public intervention.

UNIT IV URBAN STUDIES
Topics include urban decay, change and renewal, place-making, heritage, conservation, identity, suburban sprawl, gated communities, generic form, privatization of public realm. Agencies responsible for ensuring better urban design, their roles, powers and limitations. Tools and methods to include different types of maps/mapping, drawings, sketches, photo documentation, reading, data collection and analysis.

UNIT V CONTEMPORARY URBANISM
Understanding aspects, issues and solutions related to urbanism today through the study of literature and best practices/case studies in urban design. Contemporary practices: Townscape policies, building bye-laws and regulations for existing and emerging areas of development. Special rules for heritage and hill areas.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Understand the fundamental concepts, principles, and elements of urban design
CO2 Comprehend the complexities of urban design as a three-dimensional entity
CO3 Demonstrate the application of urban design principles by organizing and articulating spaces, and considering the image of the city.
CO4 Evaluate the impact of physical and non-physical determinants on urban forms, critically examine case studies to identify urban design characteristics
CO5 Assess the effectiveness of urban design policies, regulations, and interventions, and critically evaluate contemporary urbanism practices
CO6 Synthesize knowledge skills to propose innovative urban design solutions, to develop sustainable, and functional environments.

TEXT BOOKS
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NCC Credit Course Level 3*

NX3651 (ARMY WING) NCC Credit Course - III

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TOTAL: 45 PERIODS
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**TOTAL: 45 PERIODS**
OBJECTIVES

- Able to study plan preparation and its relationship of higher order plan with lower order plans such as Master Plan with Zonal Plan and Detailed Development Plan.
- Develop the lower order plan within the framework of Master Plan.
- Able to details out land allocations and planning proposals given in statutory plans at the inner part of cities.
- Help students to see interrelations amongst different sectors at the sub-city level.
- Understand the practical reality of land allocation and management policies.

CONTENT

Approach to Plan Making: Introduce different approaches to plan making with a focus on local or sub-city level planning and to apprise the comprehensive development plan, structure plans, zonal plans and sector plans with an intension to understand its local implications.

Secondary Source Information for a Selected City or Town: Identification and preparation of secondary source information of the lowest planning level of a city.

Organization of field surveys: Conduct, analyze and interpret findings of detailed primary surveys on different aspects of built form – land use and utilization, building footprints, floor-wise land utilization, building and population density, infrastructure needs, etc. Conduct key informant interviews, stakeholder mapping and profiling, case study interviews and questionnaire-based surveys to develop detailed local development covering all spatial and socio-economic aspects of development.

Plan, policies and proposals: Sub-City level plan to be prepared on aspects of land and building use, local development regulations, planning standards, building bye-laws, local circulation and transportation aspects, land economic base, local environmental conditions, conservation and urban design, and other aspects deemed contextually relevant.

TOTAL : 150 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Appreciate the rationale for planning at local area level.
CO2 Outline the development of the relevant planning standards for different land uses.
CO3 Identify major socio-economic, physical, environmental and regulatory issues pertinent to revitalize local area.
CO4 Value the ideology of preparation of sub-city plan by considering stakeholder’s needs, issues, potential and priorities.
CO5 Examine the various context specific aspects and to create various development options.
CO6 Develop spatial guidelines and development regulations to outline the planning strategies adopted for plan implementation.

TEXT BOOKS

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3- High 2-Moderate 1-Low
OBJECTIVES

- To understand the concept of a region and its significance in spatial planning.
- To familiarize the students with various regional planning models and techniques used to analyze and design regional development strategies.
- To examine the patterns and processes of settlement distribution within a region, considering factors such as population density, land use, infrastructure, and accessibility.
- To gain insights into the processes involved in regional development, including economic growth, infrastructure development, environmental considerations, and social aspects.
- To critically analyze regional planning policies and their impacts on sustainable development, social equity, and environmental conservation.
- To apply regional planning principles and techniques, evaluating their effectiveness in addressing real-world regional development challenges with the help of case studies.

UNIT I REGION AND TYPES OF REGIONS
Defining a region, types of regions; Delineation of regions; Metropolitan region, structure of a metropolitan region, area of influence and dominance, shadow regions; Trickle down effects; Rural-urban fringe, its structure, growth and implications.

UNIT II SPATIAL DISTRIBUTION OF SETTLEMENTS
Settlement in regional; context; spatial models of location, size and spacing of settlements; Central Place Theory; Characteristic of rural – urban fringe; rural– urban continuum; inter – urban inequalities; Regional interaction: Rank Size Rule, Settlement patterns and analysis; Loschian theory; Regional networks.; Gravity model, classification of settlements; Delineation of Regions, institutional scalogram.

UNIT III REGIONAL DEVELOPMENT
Regional development; Balanced and unbalanced development; Underdevelopment; Regional multiplier, input-output model; Cumulative causation theory; Core-periphery model; Growth poles and centers; Regional planning projects such as corridor development, road development projects, port development projects, airports and metro rail projects, etc.

UNIT IV PLANNING PROCESSES
Regional planning processes: Identification of plan objectives; collection, classification and analysis of data; Norms and standards for regional planning; Formulation of alternative plan proposals with respect to population distribution, location of new regional economic activities, infrastructure, plan implementation, etc.

UNIT V CASE STUDIES
Selected case studies in regional development - Rajasthan canal area, South- East resource region, Western ghats region, etc. District planning. Metropolitan regions - National capital region, Mumbai metropolitan region, international case studies.

TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Comprehend different types of regions, regional planning models, and techniques.
CO2 Understand the need for planning at various levels, with a specific focus on regional planning.
CO3 Analyze the spatial distribution of settlements and understand the nature of regional development processes.
CO4 Familiarize with the contents, approach, and methodology of preparing Regional Plans.
CO5 Evaluate and assess the effectiveness of regional development processes.
CO6 Synthesize information from case studies and apply it to real-world regional planning scenarios.
TEXT BOOKS

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3- High 2-Moderate 1-Low

BN3702 URBAN FINANCE

OBJECTIVES
- To understand about the powers and resource of local government
- To analyse about the source of financing and urban reforms
- To understand about pooled finance development fund
- To understand about the property tax reforms a monetization of public properties
- To analyse about the process of financial management system for urban area
- To understand about public private partnership

UNIT I MUNICIPAL FINANCE
Principles and composition of income and expenditure of urban local bodies; Taxation and user charges; Intergovernmental fiscal relations; Powers and resources of local governments; Constitutional provisions; CFC and SFC, Index of decentralization; Limitations and need for revenue enhancement; Expenditure Control methods and mechanisms; Assistance from foreign donors and Mutli National agencies.
UNIT II  ALTERNATIVE SOURCES OF FINANCING
Types of Partnership approaches, Privatization of civic services, types of contracts and ownerships; user charges projects; Pricing of services; Market Access; Municipal Bonds; Pooled finance; Land Value Capture; Land Extractions.

UNIT III  RESOURCE BASED ON ACHIEVEMENT OF URBAN REFORMS
Role of state government and urban local bodies; City’s challenge fund Urban reforms, Implications on resources, incentive fund and state level; Pooled finance development fund; property tax reforms and monetization of public properties.

UNIT IV  INSTITUTIONAL CAPACITY ENHANCEMENT
Finance management, management process; Accounting and budgeting, asset management, receivables management; Computerization as a tool for resource enhancement; Role of Management Information Systems.

UNIT V  INFORMATION SYSTEM
Financial operating plan, city corporate plan; Development of urban indicators; infrastructure pricing and financing - Financing mechanisms in addition to tax and grants; Private public partnerships like BOT, BOOT, BOLT etc.; Impact fee, subsidies and betterment fees.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

- CO1 Understand the income and expenditure of local bodies.
- CO2 Analyse about the assistance and requirement of donors from multinational agencies.
- CO3 Analyse about the source of financing from different approaches.
- CO4 Understand about the role of urban local bodies in facing the challenges in urban reforms.
- CO5 Understand about the financing mechanism.

TEXT BOOKS

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OBJECTIVES
• To understand different approaches to plan making, role and relevance of regional planning, in the context of 73rd and 74th constitutional amendment acts.
• To enumerate the growth and expansion of human settlement within the contextual framework of regions and the approach to planning them.
• To acknowledge regional planning process and manner of preparation of regional plan.
• To impart techniques, tools and methods on preparation of development plan for a region or district.
• To attempt to experiment the significance of regional plan Preparation, Publication and Sanction rules.

CONTENT
Studying development plans: Role and relevance of regional planning at district or block level for regional planning, critical appraisal of district or block level plans; Understanding the contents of various types of regional plans and their linkages with higher and lower order plans.
Secondary Source Information for a Selected Region: Identification and preparation of secondary source information of the region selected for the study.
Constitutional Provisions: Through live case examples or literature reviews, understand District planning in the context of 73rd and 74th Constitution Amendment Acts; District Planning Committees (DPCs); Metropolitan Planning Committees (MPCs) and Ward Committees, related to the preparation of Regional Plan.
Organization of field surveys: Visit to the case study area, collection of primary and secondary data and information on various aspects such as demography, social, economic, housing, transportation, etc. Conduct of primary and secondary surveys. Interaction with various stakeholders.
Analysis and Synthesis: Identification of development issues, potential thrust areas and constraints: sectoral and spatial; designing of alternative planning strategies, settlement patterns and development strategies; Sectoral and spatial prioritization, phasing, financial plans, institutional mechanisms, legislative framework, management plans.
Plan, policies and proposals: Preparation of Regional Plan, policies and proposals with different scenarios and identification of priority areas; phasing and monitoring; governance structures for implementation; regional land utilization plan and detailed project report.

TOTAL : 150 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Appreciate the rationale for planning at regional level, in consideration of economic, social, and cultural factors in regional growth and change.
CO2 Envision the spatio-economic growth trajectory of the region.
CO3 Experimental approaches towards stakeholder involvement, community engagement, and working with diverse communities.
CO4 Propose spatial and sectoral interventions at regional scale, both in urban and rural context.
CO5 Promote the association amongst land, resources, disparity, diversity, interdependence and equity in regional setting.
CO6 Prepare alternate spatial strategies, policies, and to make planning proposals, for the identified hierarchy of settlements.
TEXT BOOKS

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3- High 2-Moderate 1-Low

BN3722 DISSERTATION L T P/S C 0 0 6 3

OBJECTIVES
- To develop knowledge and skills in identifying appropriate literature for a given topic of research /study, draw inferences and understanding from a wide range of literature.
- To explore different tools and techniques and qualitative and quantitative analysis that are acquired in the context of the study undertaken.
- To engage in logical dialogues and discourses based on past research.
- To acquire report writing skills, Report structuring and Chapterisation.
- To promote research in urban and regional planning.

CONTENT
To introduce the students on research methods and to develop competencies for critically examining a topic of their interest and present it credibly before the faculty. This is also a preparatory stage for the students to get enough knowledge and skills for carrying out a thesis project of their choice. Furthermore, this course will help them to have general ideas about their
topic for undertaking thesis project and develop research questions, structure, research strategy and present critical analysis of existing literature.

TOTAL: 90 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

**CO1** Identification of topic of interest having relevance to planning profession, Establishing a need for research in the chosen domain.

**CO2** Develop knowledge about how to systematically organize ideas for a particular research topic

**CO3** Articulate responses to various authors, books and papers and move from argument to argument in a succinct and logical way to identify a research gap.

**CO4** Select a research design and appropriate tools & techniques for data analysis.

**CO5** Identification of study area and significance.

**CO6** Report structuring and Chapterisation.

TEXT BOOKS


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OBJECTIVES

- Help the students to have direct understanding of the practice of planning profession.
- Able to formally and informally interact with the Officials engaged in planning to enhance employability of the students.
- To enable the acquisition of in-depth knowledge in a specific aspect/issue in the discipline of planning as well as develop perspectives on the same through reading, study, analysis and thought.
- Enable interacting with practicing Planners, allied professionals, researchers and organizations working in the field of specialty in planning.
- Provide students the opportunity to test their interest in a particular career before permanent commitments are made.

CONTENT

The students shall undertake the Internship training, in an Organization engaged in activities relating to Planning for a period of 4 weeks. The internship training will provide the necessary acumen and knowledge to the students to become employable by any Planning Organization. The Internship is also expected to make familiar the internship demands and complexities of planning. The students may also utilize the internship training to strengthen the quality of their thesis works. The students are expected to complete the internship training before the commencement of the seventh semester and enroll for the same in the seventh semester.

The work undertaken during this training shall be presented by the students in the training seminar before the faculty. The students shall submit an internship Training Report and shall be evaluated on the basis of the Report submitted through a Viva-Voce Examination, as part of the End Semester Examinations of the Seventh semester.

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Express the basic knowledge of named social sciences and relationship of this knowledge with the core ideas of urban and regional planning.

CO2 Exposure in and enrichment with respect to specific areas of planning for pursuing practice or independent research.

CO3 Able to determine the challenges and future potential for his/her internship organization in particular and the sector in general.

CO4 Able to test the theoretical learning in practical situations by accomplishing the tasks assigned during the internship period.

CO5 Apply various soft skills such as time management, positive attitude and communication skills during performance of the tasks assigned in internship organization.

CO6 Analyze the functioning of internship organization and recommend changes for improvement in processes.

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3- High 2-Moderate 1-Low
OBJECTIVES

- Develop the knowledge and skills to carry out independently the identification of development issues through a well laid out methodology.
- Enhance the design/research abilities and apply the knowledge gained, skills developed and professionalism
- Develop the knowledge in Select a research design and appropriate tools & techniques for data analysis
- Propose rational solutions towards sustainable development of the urban and rural settlements.
- Develop the knowledge and skills to carry out independently the identification of development issues through a well laid out methodology.

CONTENT

Building on the subject of ‘Dissertation’, the main objective of ‘Thesis’ is to teach students about how to conduct research systematically, starting with making a choice of a research topic through the literature review, field work, analysis of field data, synthesis of literature and field work findings, drawing conclusions and making recommendations.

Each student is required to prepare a thesis on a subject concerning urban, rural or regional planning and development. Each research topic would be approved by the faculty and finalized through discussions within the department. Thesis will provide an opportunity to the student to synthesize knowledge and skills acquired by him/her through learning of various theories and practices during the last three and half year. The students will be required to present their work orally, graphically and through written report. The student will also be required to present his/her thesis before the external jury appointed by the school.

The thesis shall be monitored continuously and periodically through internal marked reviews to check the consistency of work, the relevance of the analysis with respect to the data collected and project scope, and the progress towards logical proposals

TOTAL : 300 PERIODS

COURSE OUTCOMES

Upon the completion of this course, the students would be able to:

Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Create coherent key take aways on various books and papers, proceeding logically to the thesis topic.
CO2 Ability to understand sectoral and spatial issues emerging as a consequence to development and scientifically analyze the planning issues.
CO3 Apply solutions appreciating the principles of planning in a democratically acceptable and a justifiable manner.
CO4 Conduct data analysis and analyze scenarios related to development.
CO5 Formulate development related proposals or solutions.
CO6 Able to write and present a Research Proposal.

TEXT BOOKS

REFERENCES

CO-PO Mapping

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3- High 2-Moderate 1-Low

PROFESSIONAL ELECTIVE COURSES

BN3001 STREET PLACES AND ACTIVE TRANSPORT

OBJECTIVES
- To understand the standards of street infrastructure for the pedestrian
- To understand the level of active transport and the neighbourhood design
- To evaluate the safety aspect of the pedestrians
- To understand the guideline for the pedestrian
- To understand the techniques and requirements for modelling active transport

UNIT I STREET INFRASTRUCTURE

UNIT II ACTIVE TRANSPORT AND ITS INFRASTRUCTURE
Levels of active transport - Built Environment and Neighborhood Effects on Travel Behaviour - Active Transportation and Health - Active Transport Infrastructure and Public Transport Provision – access to service

UNIT III ACTIVE TRANSPORT AND SAFETY
Active transport and road safety – road safety and urban form – walking and pedestrianisation – Cycling – policies and program – facilities and infrastructure - The Effect of Personal Characteristics on Travel Behaviour

UNIT IV GUIDELINES FOR PEDESTRIAN FACILITIES
Public transport planning and operation – bus and train transit modes – transit system performance – integrating active and public transit issues and opportunities.

91
UNIT V  LEGAL ASPECT

Pedestrian modelling techniques – road network and pedestrian flow – crowd management – indicators to measure congestion – guidelines and tools for pedestrian facilities

TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Understand the street infrastructure required for the safe and healthy movement of the pedestrian.
CO2 Relation of neighbourhood design with the active transport.
CO3 Policies and guideline for the active transport.
CO4 Infrastructure facilities required for the active transport.
CO5 The Effect of Personal Characteristics on Travel Behaviour of the people
CO6 Modelling techniques to design the pedestrian flaw and crowd management

TEXT BOOKS


REFERENCES

1. IRC 103 – 2012 Guidelines for pedestrian facilities

CO-PO Mapping

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BN3002  CLIMATE RESILIENT SETTLEMENT PLANNING

OBJECTIVES

• To introduce the basic concepts of climate change mitigation, adaptation and resilience.
• To facilitate about the implications of climate change in settlement planning.
• To familiarize with the emerging opportunities in climate change mitigation and adaptation.
• To inculcate the idea of planning for climate resilient cities by examining various emerging theoretical frameworks as well as field experience.
• To create awareness about policies and guidelines related to climate change mitigation and adaptation.
UNIT I UNDERSTANDING CLIMATE CHANGE
Basics of Climate Change, Ozone depletion, Factors affecting climate change, Changing perspectives of Climate change, Impacts of climate change, Vulnerability, Urban Heat Island effect, Flooding, International and National Efforts: United Nations Framework Convention on Climate Change (UNFCCC), Conference of Parties, Kyoto Protocol, Intergovernmental Panel on Climate Change (IPCC), National Communication Process, National Action Plan on Climate Change (NAPCC), Indian Network of Climate Change Assessment, Global Environment Facility (GEF), Clean Development Mechanism (CDM); International guidelines; Global, national and state policies on climate change.

UNIT II MITIGATION STRATEGIES AND LOW CARBON DEVELOPMENT
Urbanization and Climate change - human settlements as major contributors to GHGs, Sectoral emissions; Carbon footprint; Mechanisms and measures for mitigating climate change, Carbon credits, trading and other alternatives; Low Carbon Settlements, Planning interventions for low carbon development through case studies – Integrated land use and transportation planning; Compact city form, Transit oriented development, Sustainable transport, Energy efficient approaches, Waste management; Best practices, Mitigation strategies at various levels through case studies.

UNIT III ADAPTATION STRATEGIES AND CLIMATE CHANGE RESILIENCE
Migration as adaptation, Importance of adaptation in preparing and coping with climate change; Ways to adapt to climate change - Early warning systems. Ecosystem restoration, Climate-resilient infrastructure, urban water management system - supply and security, Long-term planning; Capacity development; Best practices, Adaptation strategies at various levels through case studies.

UNIT IV SOCIO-ECOLOGICAL RESILIENCE TO CLIMATE CHANGE
Socio-ecological resilience discourse, Nature and society through the lens of resilience - Nature based solutions, Eco system approach, Green cities; Assessing climate change stress through field exploration, Ways of building resilience to climate change stress; Energy efficient city planning; Best practices, Climate change resilient settlements for urban poor, coastal cities through case studies.

UNIT V BUILDING CLIMATE CHANGE RESILIENCE
Future and smart cities, Urban climate governance and participatory action planning - Locally led planning strategies, Precautionary principle and climate change; Institutional preparedness; Integrating climate change policy and action plan in various levels of development plans, Operationalization of Climate Resilience – Policy level, planning level and Implementation level. Action plan and resilience plan for state, region and urban area; Emerging tools and techniques in climate studies. Best practices.

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Elucidate the impact of climate change and specific vulnerabilities related to it.
CO2 Appreciate planning with respect to adaptation, mitigation and resilience associated with climate change.
CO3 Illustrate emerging opportunities in climate change mitigation and adaptation.
CO4 Enumerate climate change mitigation through sustainable urban solutions.
CO5 Elucidate the idea of socio ecological resilience to climate change and examine ways of assessing climate change stress.
CO6 Associate sustainability in a holistic manner, incorporating past knowledge and current developments in the field.

TEXT BOOKS

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BN3003 ADVANCED SPATIAL DATA INFRASTRUCTURE FOR PLANNING

OBJECTIVES
- To expose the students to advanced techniques in GIS
- To educate students in Phyton language.
- To impart the skill of customization using Phyton in GIS.
- To educate students in R programming.
- To enable the students to do spatial analysis using R Programming.

UNIT I MODEL BUILDER AND ARC TOOLBOX
Introduction to Arc Scene, 3D Spatial Analyst Tool, Introduction to model builder, Types of Model builder, creating a new tool box for a work flow. Mobile Mapping and data integration. Flood stimulation mapping.

UNIT II INTRODUCTION TO PYTHON
Scripting, Introduction to Python, Numbers and operators, Variables and Data types, Expressions, Decisions and Loops, Modules, File Access, loading Vector & Raster layers, List, Dictionaries, Simple Functions, Simple Graphics, Image Processing, Design of Simple GUI,
Instance Variables, functions for vector to raster conversion, georeferencing raster layer, creating a hill shade map.

UNIT III  OBJECT ORIENTATION IN PYTHON  15
Objects and Classes, Data-Modeling, Building a New Data structure, Inheritance and Polymorphism, Data Encryption, Threads and Processes, Search Algorithms, Basic Sort Algorithms. Setting up a Python editor, Geoprocessing using Python, Arcpy Package, Debugging and error handling

UNIT IV  R PROGRAMMING BASICS  15
Introduction, Data types, Variables, Vectors, Scalars, Conclusion, Data Frames, Lists, Matrices, Arrays, Classes, Arithmetic and Boolean Operators and values, Structures, Control Statements, Loops, Recursion, Scoping Rules, Loop functions, Array and Matrices, Spatial programming

UNIT V  DATA MANIPULATION AND DATA VISUALISATION  15
Functions, Math Functions, Linear Algebra Operation, Probability Distributions: Normal, Binomial, Poisson, Graphics, Creating Graphs, Customizing Graphs, Box plot, Histogram, Pie graph, Line chart, Scatterplot, Spatial Attribute Analysis

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Develop 3D visualisation and stimulation using GIS software.
CO2 construct required tools using model builder
CO3 Explain the use of python programming and its functions in analysis of issues.
CO4 Solve urban Planning problems by customizing the work flow using python Scripts.
CO5 Explain the use of R programming and its functions in simplifying the data visualization.
CO6 Develop spatial analysis tools using R and Phyton Programming.

TEXT BOOKS

REFERENCES
BN3004 CINEMA AND CITIES

OBJECTIVES
- To look at the representation of the city in cinema.
- To exploring the links between urban topography and cinematic space across a range of thematic, historical and cultural concerns.
- To attempt cinema as an innovative and powerful archive of urban life.
- To understand how cinema will portray the urban spaces and its associated activities.
- To develop the ability of the students to refer shapes of the settlement, movement of city life, etc.

UNIT I INTRODUCTION
Significance of Cinema for understand urban development – Images and use of real buildings in movies – Themes organized in films - From the City to the Cinema - the city as an appropriate scenario to serve the narrative - render in moving pictures the shapes, masses, spaces, surfaces, and textures of the built environment – case studies.

UNIT II FILM AND MODERNITY
The City in Cinema - the navigation of space, the creation of point of view and narrative - key aspects of urban history and theory - historical and mythological stories of the past- Cinema manifests and cities - Looking for a “new” in architecture and cities in relation with cinematic thinking.

UNIT III STREET AND SPATIAL DISRUPTIONS
Character of streets – Inception the choice of spaces – tangible and intangible activities – visuality and urban experience – consumer cities – public space and surveillance.

UNIT IV URBAN ANXIETIES
Exploring the diverse and complex cinematic setting – depiction of cities and urban spaces – urban culture and portrayal of character – effect of politics – race, class, gender equality, splintering urbanism, etc – segregation of time and space.

UNIT V HOPE AND STRUGGLE IN AN INDIAN METROPOLEIS
Cinema and Indian Urbanism – Social Complexities and vibrant environments - changing urban scape through cinema – memory bank - highlighting the process of urbanization.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
- CO1 Explore and interpret various aspects of the urban experience through films.
- CO2 Witness the transformation of urban spaces from past to present and in future.
CO3 Examine the imaginaries and understanding of highlighted the space, activity, stratification, etc.

CO4 Examine the complex and longstanding interrelationship and exchange between film and city.

CO5 Facilitating a critical encounter with cities, film is considered a mobile representation in which social, geopolitical and cultural meanings are documented, imagined, reassembled, circulated and contested.

CO6 Examine how film represents the city and its architecture to develop a deeper critical understanding of the relationships between modernization, industrialization and the people’s perceptions and experiences.

TEXT BOOKS
2. Donald James, “Imagining the Modern City: Minneapolis”, University of Minnesota Press, 1999.

REFERENCES

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BN3005 PUBLIC TRANSPORTATION SYSTEMS L T P/S C
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OBJECTIVES
- To understand the characteristics of various urban transportation systems
- To learn the concepts of route network design
- To familiarize with scheduling
- To study the planning aspects of terminals
- To be acquainted with sustainable urban transportation systems
UNIT I  TRANSPORT SYSTEMS  
Urban modes and service types - Technological and operational Characteristics – environmental considerations – relative cost economics – criteria for selection

UNIT II  ROUTE NETWORK DESIGN  
Transportation Demand estimation, Data requirements, Network planning - Corridor identification - Route Systems and Capacity

UNIT III  SCHEDULING  
Components –Scheduling procedure and patterns –Fleet Requirement – Bus and Crew scheduling - Rail operation design – Scheduling – Frequency and Headway

UNIT IV  TERMINAL PLANNING  
Planning and design of terminals - Bus stop capacity - Depot location - Depot layout, Parking patterns, Rail Transit: Station Arrangements - Way capacity and Station Capacity

UNIT V  SUSTAINABLE URBAN TRANSPORTATION  
Preferential treatment for high occupancy modes, promoting non-motorized modes of transport - Integrated land use and transport planning – Demand management techniques - Integrated public transport planning; case studies- Smart Cities.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1  Compare and select suitable urban transportation systems
CO2  Design route network
CO3  Schedule the transit units and crew
CO4  Apply the concepts of terminal planning
CO5  Have a knowledge of sustainable transportation systems

TEXT BOOKS

REFERENCES
1. National Urban Transport Policy ,2013

CO-PO Mapping

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3- High 2-Moderate 1-Low
OBJECTIVES
- To introduce the basic concepts relating to gender and provide logical understanding of gender roles.
- To sensitize the students on cultural construction of masculinity and femininity.
- To apply central concepts and theories from Gender Studies to their own life experiences and the world around them.
- To understand and analyze forces shaping individual experiences as well as social structure and institutions such as the family, workplace, and media.
- To stimulate amongst the students the various strands of feminist thought.

UNIT I  FUNDAMENTAL CONCEPTS OF WOMEN’S STUDIES
Definition- Objectives of Women’s Studies; Importance of Women’s Studies; Women’s Studies as an Academic Discipline; Role of UGC Centre for Women’s Studies; Women’s Studies in India and Abroad – Origin and Growth.

UNIT II  SOCIAL EMPOWERMENT
Women in Higher Education; Gender issues in Health, Environment, Family welfare Measures, Indecent representation of Women in media; Women in Difficult circumstances; Constitutional.

UNIT III  ECONOMIC EMPOWERMENT
Introduction-organized sector, unorganized sector; Role of Women in Economic Development – Female Poverty and Poverty alleviation programmes; Status of Women farmers and land rights; Women Entrepreneurs; Impact of Globalization on working women; National Policy for the empowerment of women 2001.

UNIT IV  POLITICAL EMPOWERMENT
Political participation of women – Political Socialization- Women leaders in politicsWomen in Local Governance- Barriers- Reservation policies- Women’s Political Rights: CEDAW.

UNIT V  SOCIAL ISSUES REGARDING WOMEN

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
- CO1: Elucidate the key concepts, terminology, and theoretical frameworks central to the interdisciplinary field of Gender Studies.
- CO2: Appreciate complex interconnections of gender, race, class, sexuality, ability, and other categories of power and identity in various spheres of human endeavor ranging from the socio political to the aesthetic.
- CO3: Demonstrate an openness to learning about people, cultures, and societies different from themselves and their own worlds.
- CO4: Envision themselves as participants in a multidisciplinary dialogue with activists, artists, and academics regarding social, political, and cultural issues of gender.
- CO5: Elucidate the need for Gender action planning.
- CO6: Illustrate the various contexts in which planning emerged as a response to the socio-environmental concerns with a range of circumstances over time.

TEXT BOOKS

REFERENCES

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3- High 2-Moderate 1-Low

BN3007 SIMULATION IN PLANNING

OBJECTIVES
- To understand the requirement and process of simulation in Planning.
- To understand different simulation Techniques.
- To understand the land use Dynamics and stimulation methods.
- To enable students to understand about the stimulation in transportation Planning.
- To enable students to understand about the stimulation in environmental Planning.

UNIT I MODELING AND SIMULATION CONCEPTS 10
Introduction to a System, model, spatial models, Simulation and Systems Modeling Language; Modelling urban system dynamics, Problem Communication, System Objectives, Development, Life-Cycle System Behavior.

UNIT II SIMULATION TECHNIQUES 10
Simulation Techniques, Modelling and simulation, Growth model, Wolves and sheep model, Simple urban system, grid city, network city, Monte Carlo Method, Importance Sampling, Metropolis Algorithm, Heat-bath algorithm, MD and Verlet algorithm, correlations.

UNIT III SIMULATION ON LAND DYNAMICS AND CHANGE 15
Land Dynamics, factors influencing land dynamics, types of land use dynamics model, economic module, vegetation change module, agent-based module, Introduction to cellular automata for land use change simulation, Overview of urban Simulation software’s.
UNIT IV SIMULATION IN TRANSPORTATION

Four stages in transportation planning, accessibility and mobility consideration in transportation planning, Importance of simulation in transportation planning, Application of software in transportation Planning.

UNIT V SIMULATION IN ENVIRONMENTAL STUDIES

Importance of environment in Planning, components which can be simulated in environment planning, Geographic data for environmental modelling and assessment, Vegetation mapping and monitoring, The land surface atmosphere interface, climate simulation, Envimet for climate simulation.

TOTAL: 75 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

- CO1 Outline the importance of simulation in urban planning.
- CO2 Summarise the different simulation techniques.
- CO3 Evaluate land use dynamics in planning and its importance.
- CO4 Create different simulation in transportation planning.
- CO5 Formulate different simulation techniques in environmental planning.
- CO6 Perform various simulation in different software's.

TEXT BOOKS


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3- High 2-Moderate 1-Low
OBJECTIVES

- To impart knowledge of causes of various disaster and its impact.
- To understand the concept of Disaster Management Cycle and Framework.
- To explain the Applications of Science and Technology for Disaster Management & Mitigation.
- To understand Disaster Management Mechanisms; Disaster Risk Mitigation; and Post Disaster Measures.
- To develop the ability of the students to refer to and relate with the clauses of NDM Act, propose disaster sensitive land use plan, recommend disaster compliant building bye laws, create resource / social / vulnerability / opportunity map, prepare disaster vulnerability index.

UNIT I INTRODUCTION

Hazards and Disasters, Risk and Vulnerability in Disasters, Natural and Man-made disasters, earthquakes, floods drought, landside, land subsidence, cyclones, volcanoes, tsunami, avalanches, global climate extremes. Man-made disasters: Terrorism, gas and radiations leaks, toxic waste disposal, oil spills, forest fires.

UNIT II TYPE OF DISASTER

Earthquakes and its types, magnitude and intensity, seismic zones of India, major fault systems of India plate, flood types and its management, drought types and its management, landside and its managements case studies of disasters in Sikkim (e.g) Earthquakes, Landside). Social Economics and Environmental impact of disasters.

UNIT III MITIGATION AND MANAGEMENT TECHNIQUES

Basic principles of disasters management, Disaster Management cycle, Disaster management policy, National and State Bodies for Disaster Management, Early Warming Systems, building design and construction in highly seismic zones, retrofitting of buildings.

UNIT IV DISASTER MANAGEMENT IN INDIA


UNIT V APPLICATION OF TECHNOLOGY FOR DISASTER MANAGEMENT & MITIGATION

Geo-informatics in Disaster Management, Disaster Communication System, Land Use Planning and Development Regulations, Structural and Non-Structural Mitigation of Disasters, Science & Technology Institutions for Disaster Management in India.

TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Explain disaster management basics and theory (cycle, phases, risk, crisis, emergency, disasters, resilience).
CO2 Understand disasters, disaster preparedness and apply the mitigation measures.
CO3 Understand role of IT, remote sensing, GIS and GPS in risk reduction.
CO4 Apply knowledge of disaster management acts and guidelines.
CO5 Understand disaster management acts and guidelines along with role of various stackholders during disasters.
CO6 Compare hazards, disasters and associated natural phenomena and their interrelationships, causes and their effects - developing humanitarian Assistance before and after disaster.
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BN3009 INTELLIGENT TRANSPORTATION SYSTEM (ITS)

OBJECTIVES
- To learn the fundamentals of ITS
- To understand the different types of sensors
- To study the ITS functional areas
- To have an overview of ITS implementation in developed countries
- To learn the implantation of ITS in developing countries

UNIT I INTRODUCTION


UNIT II TELECOMMUNICATION AND ITS

UNIT III  FUNCTIONAL AREA OF ITS

UNIT IV  MANAGEMENT OF ITS

UNIT V  APPLICATION OF ITS
Automated Highway Systems - Vehicles in Platoons – Integration of Automated Highway Systems. ITS Programs in the World – Overview of ITS implementations in developed countries, ITS in developing countries, Case studies

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1  Understand the sensor technologies
CO2  Understand the communication techniques
CO3  Apply the various ITS methodologies
CO4  Understand the user needs for improving ITS
CO5  Understand the significance of ITS under Indian conditions

TEXT BOOKS

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OBJECTIVES

- To recognize the importance of water in the urban landscape, and its role in the welfare and health of humans.
- To familiarize with the different ways of identifying opportunities for integrating water into the urban landscape.
- To elucidate the application of water sensitive techniques to integrate the management of water into the urban landscape.
- To inculcate an interest towards sustainability and livability of cities while securing adequate resources for growing cities as well as alternative water sources.
- To expose students to best management practices, state of art knowledge in the area of water sensitive planning.

UNIT I  WATER SENSITIVITY
Introduction to water sensitive planning, Concept of water sensitivity, approach, principles, objectives; Need for water sensitive planning; Components of water sensitive planning; Water in the urban landscape, the urban water cycle and its component characteristics; Various sources of water and its quality, use of water, Spatial variations of water availability in India; Water stock, water consumption, and demand for various water uses. Development challenges for water management

UNIT II  WATER RESOURCE MANAGEMENT
Water supply management, best practices in water supply management; Water demand management, Strategies for demand management; Social, environmental and economic impacts of urban water management; Strategies for Water pricing, regulation; water conservation measures; Water cycle management, Waste water - Waste water estimation, collection and disposal, and its subsequent use, waste water treatment and management systems, storm water resource management systems. Technological options for wastewater management, recycling, reuse and treatment; Storm runoff management, desalination.

UNIT III  PLANNING APPROACHES
Sustainable urban drainage systems and measures for public open spaces: bio retention areas, filter drains, detention basins constructed wetlands, bio swales. Initiatives for ensuring water Sensitivity; Water sensitive planning approaches, Case studies and best management practices of Water-sensitive planning (city/zonal scale), Case studies and best management practices of Water-sensitive designing (neighborhood/institutional scale), Case studies and best management practices of Water-sensitive designing (individual scale). Best management practices and Case Studies of water sensitive street design.

UNIT IV  SOCIO-ECONOMIC AND ECOLOGICAL IMPACTS
Economics of Water Sensitivity planning, Factors affecting costs, benefits of water sensitivity planning, Social and ecological impact of Water Sensitivity planning, Role of organizations and institutions working for water Sensitivity in India. Comparison between conventional practice and water sensitive planning approaches for managing urban water resources. Scope of water sensitive planning interventions; Tools and approaches for plan, policy, programme and projects.

UNIT V  LEGAL ASPECTS RELATED TO WATER SENSITIVITY PLANNING

TOTAL : 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Elucidate global and Indian water sensitive challenges.
CO2 Appreciate the Potential and opportunities for connecting water, urban planning/development.
CO3 Demonstrate an ability and skills to make development plans and design projects for meeting global and Indian water sensitivity challenges.
CO4 Formulate water sensitive layouts and street designs.
CO5 Critically analyse the implementation and institutional issues relating to water sensitive planning, including maintenance and policy.
CO6 Illustrate the various technologies, strategies, regulations involved in water management.

TEXT BOOKS

REFERENCES

CO-PO Mapping

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BN3011 WEB BASED APPLICATIONS IN PLANNING

OBJECTIVE
- To introduce the fundamentals of cloud computing and principles of web-based application
- To learn the use of a variety of strategies and tools for data analysis
- To understand the nature of web-based data available at the rural, urban, and regional levels of planning
- To understand the collection and interpretation of data from the web-based applications
- To understand the role of state and central government agencies in cloud computing and geoinformatics

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UNIT I WEB-BASED GIS PLATFORMS IN INDIA
National GIS mission NIC – Products and platforms; Centre Level and State Level – PRAYAS, Collab GEO, SVAMITVA, Bhuvan, Jal Jeevan, etc

UNIT II BHARAT MAPS, BHUVAN
Direct Benefits Transfer, Spatial Data services framework, access in Government-to-Government Function; SWAMITVA, DBT GIS, Green watch, etc

UNIT III TNGIS
Data available in TNGIS, accessing TNGIS, Accessing data; Physical infrastructure, social infrastructure, transportation and natural resources

UNIT IV CLOUD DATA AND FREE GIS DATA SOURCES
GIS and cloud computing, Cloud GIS, Qfield, ArcGIS insights; Open Street Map, ESRI open data hub, NASA’s SEDAC, NASA Earth Observation

UNIT V CASE STUDIES AND PROJECTS
Neighborhood data collection from various data available online Physical infrastructure and social infrastructure services mapping

TOTAL: 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
- To know various government portals to collect GIS-based web data.
- To demonstrate skills to examine various data collected from the web portals.
- To know the Government-to-government functions.
- To identify various roles of State and Central Government agencies with respect to geoinformatics, GIS and urban planning
- To know how to use cloud computing for data access, data collection and mapping
- To collect all Web-based data for various levels of planning – rural, urban, regional

TEXT BOOKS

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3- High 2-Moderate 1-Low

BN3012 DEVELOPMENT REGULATIONS

OBJECTIVES
- Familiarize the students on the concept of development and highlight the importance of regulated physical development.
- Acquaint the students on the importance of Planning approach, with particular reference to land use zones, and regulations relating to development of land and buildings.
- Knowledge in Planning, coordinating and supervising proper and orderly development.
- Understand the Effective and efficient delivery of urban services.
- Familiarize the public domain activity wherein the community has a significant role in planning, executing and managing development in their local areas.

UNIT I INTRODUCTION
Introducing Act relating to Town Planning- Aspects of development- Physical, Social, and Economic – Importance of physical development - Need for regulatory measures – Tools for regulating the development - Master plan and development regulations.

UNIT II ACTS RELATING TO LAND DEVELOPMENT
Indian forest act 1927 – Environmental protection act 1986 – Indian monument act – Hill region development act – Regulations relating to development of integrated townships, Special economic zones, export processing zones, and IT Parks.

UNIT III LAND DEVELOPMENT REGULATIONS
Norms governing residential and industrial layouts - Linkage, Hierarchy of roads, Plot size, Frontage, and Open Space Reservations – Reservation of land for EWS - Allocation of land for public purposes - Classification of buildings - Building Height, Number of floors, Floor space index – Parking requirements - Provision of utilities and services.

UNIT IV PLANNING NORMS
Tamil Nadu Combined Development and Building Rules, 2019, Special Economic Zone and Information Technology parks developments in Tamil Nadu - Comparative analysis of development and management regulations in various metropolitan cities.

UNIT V FINANCING URBAN DEVELOPMENT
Financing urban development projects; Sources of funding: cost recovery, cost subsidization, medium- and long-term financing - Private investments in urban development projects: prospects and limitations - Municipal financing: sources of revenue and items of expenditure - Financial resource mobilization for urban development particularly for municipal/ local bodies.

TOTAL : 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Develop the skills required to prepare comprehensive land development proposals.
CO2 Develop knowledge gather requisite capabilities to scrutinize the land and building development proposals initiated by the public and private.
CO3 Provides guidelines for the physical development of the city.
CO4 Identify relevant development issues.
CO5 Identify opportunities for and constraints to development.
CO6 Identify areas which are suitable/ unsuitable for different types of development; make proposals for the way in which the area should develop over time.

TEXT BOOKS

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BN3013 TRANSPORTATION MODELLING

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<td>• To understand the trip generation and trip distribution concepts</td>
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<td>• To learn the mode and route choice behavior of trip makers</td>
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UNIT I  INTRODUCTION

UNIT II  TRANSPORT DEMAND MODEL

UNIT III  PROBABLISTICS MODEL
Probabilistic models - Utility functions - Logit models - Two stage model. Traffic assignment – Transportation networks – Minimum Path Algorithms - Assignment methods – All or Nothing assignment and Multi path assignment - Route-choice behavior.

UNIT IV  LAND USE AND TRANSPORT MODELS

UNIT V  ADVANCE TRANSPORT MODEL

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:

CO1 Interpret the urban activity system and travel patterns
CO2 Demonstrate the classical methods of urban transportation modelling
CO3 Apply four stage travel demand modeling
CO4 Understand the trip generations and trip distribution concepts
CO5 Understand the mode and route choice of trip makers

TEXT BOOKS

REFERENCES

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OBJECTIVES

- To identify appropriate methods of design inquiry and problem solving processes to produce creative solutions to identified problems and questions;
- To introduce the different ways in which humans have shaped and designed landscapes across history and region in terms of need, culture and experience.
- To provide an overview of ecological balance and impacts of human activities today and stress on the role and scope of landscape design in sustainability and environmental conservation.
- To gain familiarity with the various elements and principles of landscape design and its contribution to human built environment.
- To introduce analytical and technical aspects involved in site planning and open space design.

UNIT I  INTRODUCTION TO LANDSCAPE

Landscape as an outcome of natural processes; Humans’ evolving relationship with nature and its expression in the designed landscape; Exploration through civilization – Man made landscape in history; Need for natural landscape and tourism in the context of sustainability; A comparative study of the major traditions of landscape design in the east and west with regards to principles and techniques of design with landform, water and vegetation; Utopias: a new vision based on equitable distribution of open spaces.

UNIT II  URBAN OPEN SPACES

Characteristics and components of open space patterns in towns and cities (traditional and contemporary) basic types. Evolution of Public places including their typology, size, nature, distribution in the urban realm; Relevance of heritage districts and precincts in the modern city; Design of urban streetscape; Transformation of nature of community recreation and its impact on form of cities. Urban spaces as components of urban landscape - Streets, squares, plazas, gardens, Ghats and maidan and parks; Public parks at district, local and neighborhood levels, Interaction spaces; Park systems.

UNIT III  URBAN GREEN SPACES

Design with nature concept; Urban green space for site planning and recreation; Classification of green spaces; Design proposals to respond to constraints and opportunities offered by the site; Study of open space structure as a basic component of a planning and process of arriving at a landscape concept; The role of vegetation; Environmental benefits of planting, functional requirements, aesthetic considerations; typical situations and criteria for design with plants and selection of species.

UNIT IV  LANDSCAPE PLANNING

Urban landscape and its transformation; Distinguishing the components of landscape at various levels; Principles of analysis and assessment of existing landscape; Landscape planning related to land-use, circulation networks and activity; Street furniture as a component of urban landscape. Landscape engineering- levels and grading including principles of cut and fill alignment, drainage. Vertical gardens; Rain water harvesting, Deforestation; Case studies and best practices.

UNIT V  LANDSCAPE MANAGEMENT

Role of government and NGOs, community participation; Political aspects that influenced landscape; Legal measures for managing open spaces, parks; Afforestation program undertaken by state government; De-forestation; Policy frameworks for landscape restoration; Conservation polices and biodiversity governance models.

TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1  Elucidate the role of nature in enhancing quality of life in urban settings.
CO2  Appreciate landscape tools in design and planning of urban spaces.
CO3  Demonstrate sensibility towards nature-inclusive development in complex urban and
CO4 Formulate reasons for evolution of landscapes across time and context.
CO5 Critically analyse the role of natural and human actions with respect to macro scale of sustainability and ecology as well as in the micro scale of shaping of outdoor environments.
CO6 Illustrate landscape design with respect to site planning and different functional typologies of spaces.

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BN3015 BIG DATA IN URBAN PLANNING

OBJECTIVES
- To understand the usefulness of Big data in Urban planning.
- To understand the necessity of collecting big data in different sectors
- To study the type of data and its implication in urban planning.
- To make detailed analyses, which can influence the design of cities and support the creation of data-based policies, plans, and projects.
- To Provide students with knowledge of advanced Big Data Analysis and Geo informatics principles, with a focus on how they apply to urban and regional planning.
UNIT I  INTRODUCTION  
Evolution of Concept: Cloud, Internet of Things and Big Data, Types of Big Data, Concept of Urban Metabolism, Big Data in Urban Planning.

UNIT II  BIG DATA FOR CITIES  
Investigating the city and its spatial, social, and economic dynamics through the lens of data and visual analytics. Utilizing large public datasets to develop knowledge about visual methods for analyzing data and communicating results. Developing a critical understanding of data structures, collection methodologies, and their inherent biases.

UNIT III  URBAN SENSING  
Context, Currently Available Datasets, ‘Real-Time’ Planning, Pervasive Technology and Digital Footprint; Urban Dynamics; Applications of Urban Sensing: Mobile Phone Network Data, Event Driven Network Data; Urban Sensing Applications, Monitoring Land Use and Land Use Inferences, Sensing Urban Mobility and other urban issues.

UNIT IV  CASE STUDIES AND RELEVANT RESEARCHES  
Global and national case studies for Sensing Urban Problems, Sensing Urban Mobility, Deciphering Urban Activities etc using big data applications.

UNIT V  BIG DATA IN URBAN DESIGN AND PLANNING  
Experimenting big data using online tools, Tools are the foundations of innovative participation methods, Public Participation Geographic Information Systems (PPGIS) or Citizen Design Science, Potentials of creative data mining. Creating direct bridges between policy-makers and citizens and supports real-time views of a particular city.

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1  Choose various government portals to collect GIS-based web data.
CO2  Define the necessity of Big Data in planning
CO3  Develop the ways of collecting big data in various sectors.
CO4  Utilising Big Data sources to assess urban issues in different sectors
CO5  Develop 3D multi-data maps, converting data between different formats
CO6  Develop an experimental approach in data collection.

TEXT BOOKS

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BN3016 REAL ESTATE MANAGEMENT L T P/S C 3 0 0 3

OBJECTIVES
- To enable understanding of land as a resource and a commodity.
- To provide adequate inputs to help understand the whole development process as a seamless activity and be aware of the tactical aspects of the entire process of real estate development.
- To equip students with the knowledge of various layout planning parameters and approval process involved.
- To encourage students to explore current trends in asset building and property development.
- To enable an appreciation of the role of team work to make a successful project.

UNIT I INTRODUCTION 9
Fundamental Concepts - Physical/Economic Characteristics, Types of Real Estate, Techniques & Sequential events in Real Estate Development Process - surveys and data rationalization; Development planning – Preparation and Interpretation.

UNIT II PRE PROJECT-STUDIES AND EVENTS 9
Site-Inventory, Evaluation& Feasibility Studies, Understanding & Analysis of Trends and Market Trajectories (Micro and Macro market), Factors affecting real estate demand, Development Team assembly.

UNIT III LAYOUT/DEVELOPMENT PLANNING & APPROVAL PROCESS 9

UNIT IV CURRENT TRENDS IN REAL ESTATE 9
SEZ, SPV, Joint ventures, Franchisee systems, Types & Parameters, Smart city concepts, Green building, Certifications and Rating for Buildings/Townships (IGBC, CARE, CRISIL, ICRA).

UNIT V MARKETING TOOLS 9
Business Communication Tools required for presenting the project, in house sales promotion, public relations, transfer of completed project, Setting of Project Management Office, Estate Management.

TOTAL : 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:
CO1 Make use of land as a resource and public domain and its endless opportunities for inclusive growth.
CO2 Construct skill in applying the various principles and techniques taught in the subject in real estate design and development process.
CO3 Understand the principles in transactions relating to the allied operations of real estate.
CO4 Criticize the recent trends and innovations in real estate.
CO5 Evaluate the completed projects and communication tools required for presenting the project.
CO6 Delineate project development process, compare the different sources of real estate funds and classify the risks associated therein.

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BN3017          LOGISTICS PLANNING

OBJECTIVES
- To understand the fundamental concept of planning in material procurement
- To understand the mode choice and freight management
- To understand the strategy for logistic planning
- Concept of supply chain management
- Legal aspects in logistic planning
UNIT I  INTRODUCTION  9
Introduction to Logistics planning - Concepts, Definition, Evolution and Importance; Urban Logistics Ecosystem; Logistics Planning: Logistics Parks/ Hubs; Warehousing and Material Procurement; Material Storage, Handling, Processing, Packaging and Transportation; Third Party and Fourth Party Logistics; Reverse Logistics and Logistics in Trade

UNIT II  FREIGHT TRANSPORT LOGISTICS  9
Management of Freight Transport Logistics and Mode Choice; Mode Characteristics and Key Features of Different Modes; Inter-Modal and Multi-Modal Transport; Shipping Business Environment and Containerization; Transport Cost Drivers; Freight Rate Structures; Freight Transport Best Practices: Vehicle Access and Loading / Unloading Operations, Low Emission Zones, Night Deliveries, Nearly Delivery Areas, ITS Applications

UNIT III  STRATEGIES FOR LOGISTIC AND FREIGHT DEMAND  9
Strategic Logistic Management Determinants of Freight Demand; Distribution Channels and Distribution Costs; Logistics Acquisition and Production; Sourcing and Contracting; Logistics Network Planning: Vehicle Routing and Scheduling, Fleet Sizing, Location Decisions

UNIT IV  SUPPLY CHAIN MANAGEMENT  9
Supply Chain Management Fundamentals of Supply Chain Management (SCM): Concept and Components; Supply-Demand Variables; Customer Services; Drivers of Supply Chain Performance; Supply Chain Segmentation: Product, Demand, Supply and Market Segmentation; Emerging Trends and Global Practices of SCM; e-commerce and Logistics

UNIT V  LEGAL ASPECT  9
Legal Aspects and Liabilities Statutes and Policies for Different Logistics Operations in India and Abroad; Liabilities and Liabilities Resolution; Marine / Cargo Insurance; Freight Quality Partnerships: Case Studies

TOTAL : 45 PERIODS

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able to:

CO1  Plan concept for procurement of materials
CO2  Understand Different modes involved in logistic planning
CO3  Explore Best practices involved in logistic planning
CO4  Fix Strategy to be followed for satisfying the demand and distribution of materials
CO5  Understand emerging Trends and Global Practices of supply chain management
CO6  Understand Logistic operation and legal aspects in India

TEXT BOOKS

REFERENCES
BN3018 ENERGY ACCOUNTING AND AUDITING

OBJECTIVES
- To expose students to the concepts of energy management, audit and accounting
- To enable students in identifying the quality and cost of various energy inputs.
- To assess present pattern of energy consumption in different cost centers of operations.
- To enable students in relating energy inputs and production output.
- To identify potential areas of thermal and electrical energy economy.

UNIT I GENERAL ENERGY PROBLEM
Energy Use Patterns and Scope for Conservation, Energy Audit: Definition, Need and Types of Energy Audit; Energy Management (Audit) Approach, Energy Monitoring, Energy Accounting and Analysis

UNIT II ENERGY MANAGEMENT

UNIT III ELECTRICAL ENERGY CONSERVATION

UNIT IV BUILDING DESIGN

UNIT V INTRODUCTION TO GREEN BUILDING

TOTAL : 45 PERIODS
COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Elucidate the ways and means by which goods and services can be provided with the least cost and least environmental effect.
CO2 Appreciate energy conservation programmes, energy utilization analysis and evaluation of energy conservation measures.
CO3 Demonstrate ability to monitor and analyse techniques of use of energy towards nature-inclusive development in complex urban and regional scenarios.
CO4 Formulate technical reports and give recommendations for improving energy efficiency.
CO5 Critically analyse action plan to reduce energy consumption in select case examples.
CO6 Illustrate the concept, components and practices of green building.

TEXTBOOKS

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BN3019 ARTIFICIAL INTELLIGENCE IN PLANNING

OBJECTIVES
- Understanding the basic concepts of AI in urban planning
- Understanding how AI applications, building on GIS and remote sensing (RS) technologies, can be used for urban planning
- Use AI methods for satellite classification
- Use AI methods for spatial modeling and analysis in urban applications
- Bringing a critical and judicious assessment to AI processing and applications
UNIT I  THEORETICAL FOUNDATIONS  9
A new agenda for AI-based urban planning, AI and the limits of human creativity in urban planning and design, Complexity science for urban solutions.

UNIT II  AI TOOLS AND TECHNIQUES  9
Classes of AI tools, techniques, and methods; urban form analysis through morphometry and machine learning; Al-driven BIM on the cloud.

UNIT III  AI IN URBAN SCALE RESEARCH  9
Urban analysis for health; spatial design for energy self-sufficient communities; optimizing urban grids layouts using proximity metrics.

UNIT IV  AI FOR SMART CITIES  9
The mission, key areas of innovation, the role of AI in smart cities mission, measuring how smart the Indian cities are, case studies, and comparison of approaches

UNIT V  CASE STUDIES  9

TOTAL: 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

- To Explore the current state of Artificial Intelligence and Machine Learning (ML), with particular emphasis on their applications in the fields of Architecture, Landscape, Urbanism and Real Estate
- Gain an understanding of Artificial Intelligence and Machine Learning that allows you to better assess and compare products and services powered by algorithms
- To use various tools and techniques.
- To know about applications of AI in research and urban systems.
- To know how to use cloud computing for data access, data collection, and mapping
- To have a view for the meaningful use of AI technology in the future

TEXT BOOKS

REFERENCES
2. C. Daniel & C. Pettit, “Digital disruption and planning – use of data and digital technology”, professional planners, and perceptions of change to planning work, Australian Planner, 57:1, 50-64, 2021.
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**BN3020 URBAN RENEWAL AND HERITAGE CONSERVATION**

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**OBJECTIVES**

- To understand role, Concepts and Techniques of Urban Renewal and Conservation.
- To study Legal and Administrative Aspects of Urban Renewal and Conservation.
- To develop the ability of the students to identify the built forms, land parcels and historic neighborhoods for redevelopment.
- To equip students with the knowledge of various tools and techniques associated with urban renewal and heritage conservation.
- Explain the economic and spatial implication of urban renewal programmes.

**UNIT I INTRODUCTION**

Urban redevelopment / renewal /reconstruction / regeneration – definitions and distinctions; Urban redevelopment as a part of urban plan; Identification of areas to be redeveloped; Conservation, rehabilitation and redevelopment – the interrelationship.

**UNIT II ECONOMIC, FINANCIAL AND MANAGEMENT ASPECTS**

Economic and spatial implications of urban renewal programs; Mobilization of resources; Urban renewal through Incentive zoning.

**UNIT III URBAN CONSERVATION AND DEVELOPMENT**

Understanding the context of both built heritage and historic neighborhoods; Conservation: socio-economic and traffic management aspects; Redevelopment of brown fields; Heritage conservation - case studies.

**UNIT IV HOUSING REDEVELOPMENT**

Issues of old, dilapidated, vacant stock; Infrastructure inserts in old city area and augmentation of services; land management; FSI utilization and re-densification/dedensification issues; socio-economic issues; gentrification and de-gentrification; public participation; Convergence of government schemes.

**UNIT V LEGAL AND ADMINISTRATIVE ASPECTS**

Implementation of urban renewal programs – an overview of national and international experiences; Legal and administrative aspects: archaeological acts/ charters and institutional mechanism in urban redevelopment and conservation in India.

**TOTAL : 45 PERIODS**

**COURSE OUTCOMES**

Course Outcomes: Upon the completion of this course, the students would be able:

**CO1** Understand and able to define urban renewal, redevelopment, regeneration, reconstruction, conservation and the distinction thereof.
CO2  Appreciate both the tangible and intangible aspects of redevelopment and conservation.

CO3  Identify the built forms, land parcels and historic neighbourhoods for renewal.

CO4  Assess the form, extent and direction of planning interventions for renewal.

CO5  Identify the notions of value and significance associated with cultural and natural heritage.

CO6  Plot the components of heritage through case studies.

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BN3021 TRANSPORT ECONOMICS

OBJECTIVES
- To discuss the characteristics of transport infrastructure facilities, its growth trend and investment strategy.
- To discuss the various transport demand and supply techniques and the methods of forecasting the demand in the future.
- To infer the principle of pricing with respect to utilization of various transport infrastructure facilities as user pay principle and the role of subsidy.
- To estimate the various alternative financing mechanism available with respect to transport infrastructure development around the world.
- To infer the feasibility of a transportation planning project.
UNIT I  FINANCING TRANSPORT INFRASTRUCTURE  9
Characteristics of transport infrastructure, Growth trends, Investment need and budgetary support, existing financing pattern, financial recurrent expenditure.

UNIT II  TRANSPORT DEMAND AND SUPPLY  9
Movement, transport and location, transport and economic development; Demand for transport, factors influencing demand; elasticity of demand, measures of elasticity; supply of transport, elasticity of supply; demand forecasting.

UNIT III  COSTING AND PRICING OF TRANSPORT SERVICES  9
Fixed and variable cost, joint and common cost, cost allocation, user cost, internal cost, external cost, economic cost; Principle of pricing, marginal cost pricing, price discrimination, operational objectives of pricing; capital costs, operation and maintenance costs revenues, transport subsidies.

UNIT IV  ALTERNATIVE FINANCING MECHANISMS  9
Multilateral and Bilateral Financing mechanism, Financial Institutions, Private sector participation, land as a resource, public private partnership, annuity based approach risk management, Investment strategy and phasing

UNIT V  FEASIBILITY OF TRANSPORT PROJECTS  9
Concept of economic feasibility; estimation of economic costs- project cost, estimation of economic benefits- benefits to users, non-users , benefits to community and economy; Financial Internal Rate of Return (FIRR), Economic Internal Rate of Return (EIRR), Net Present Value (NPV)

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1  Infer the characteristics of transport infrastructure facilities, its growth trends and strategies.

CO2  Discuss the various transport demand and supply techniques and the methods of forecasting the traffic demand for the future.

CO3  Infer the principles of pricing of various transport infrastructure facilities as user pay principle and the role of subsidy given by the government.

CO4  Estimate the various alternative financing mechanism available in the world with respect to transport infrastructure development.

CO5  Discuss the financial and economic feasibility of a transportation planning project.

CO6  Appraise the economic demand and financial requirements of a transportation planning project

TEXT BOOKS

REFERENCES
BN3022 ENVIRONMENTAL IMPACT ASSESSMENT

OBJECTIVES
- To understand the importance of Environmental Impact Assessment (EIA) in the planning process and its role in sustainable development.
- To examine the legal, policy, and regulatory requirements of EIA studies in India and gain insights into the global perspective of EIA.
- To familiarize with the step-by-step EIA process.
- To explore the various methods, tools, and techniques used in EIA.
- To analyze the social impacts of development projects and the importance of social impact assessment.

UNIT I ROLE OF EIA IN PLANNING
Introduction to EIA, Need for EIA in planning, Legal policy and regulatory requirements of EIA studies in India; Global Perspective

UNIT II EIA PROCESS

UNIT III EIA METHODS- TOOLS AND TECHNIQUES
Prediction and Assessment of Impacts- Phases of impact assessment, Various methods & techniques used in impact identification; Techniques used in impact prediction- Weighting, Scaling techniques, causal diagrams, Leopold Matrix, priority-trade off- Network- overlay; Impact Evaluation techniques- Cost- Benefit Analysis, Multi-Attribute Utility theory, DELPHI method, SDG IA Tool; Predicting Impact on the Physical Environment, Ecosystem, Biodiversity, and habitats, Cultural and Heritage process and impact assessment.

UNIT IV IMPACT ON SOCIO-ECONOMIC SYSTEM
Definition of social impact assessment. Social impact assessment model and the planning process. Rationale and measurement for SIA variables. Relationship between socio-economic impacts and change in community and institutional arrangements. Public participation and involvement in EIA.

UNIT V CASE STUDY
EIA Case Examples- India and Global Perspectives; EIA Reporting and review; Documentation of EIA findings - Evaluation of Alternatives & Decision making for the Preferred Alternative, Structuring and Writing an EIA report.

TOTAL: 45 PERIODS
COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

**CO1** Analyze the role and importance of Environmental Impact Assessment (EIA) in planning
**CO2** Evaluate the operation of EIA in India and other countries
**CO3** Apply the EIA process by effectively establishing baseline conditions and employing appropriate analysis strategies.
**CO4** Understand various methods and tools of impact assessment
**CO5** Assess the socio-economic impacts of development projects through the measurement of SIA variables,
**CO6** Analyze EIA case examples from India and global perspectives

TEXT BOOKS


REFERENCES

2. Yadav, Dr Vikrant, Environmental Impact Assessment: A Critique on Indian Law and Practices, International Journal of Multidisciplinary Research and Development, Volume 5; Issue 1; January 2018; Page No. 01-05, 2018

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BN3023 DRONE MAPPING FOR URBAN APPLICATION

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<td>● To understand the basics of drone concepts.</td>
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<td>● To impart the knowledge of and flying and operation of drone</td>
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<td>● To understand the different mapping and modelling techniques</td>
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<td>● To understand about the image processing applications for drone images.</td>
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<td>● To know about the various applications of drone.</td>
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UNIT I  INTRODUCTION TO UAV  15
UAV: Definition and history, Difference between aircraft and UAV, DGCA classification of UAV’s, Types and Characteristic of Drones, fixed, multi-rotor, flapping wings, existing Regulation in UAV Operations.

UNIT II  DRONE FLYING AND OPERATION  15
Concept of operation for drone, Flight modes- Operation of small drone in a controlled environment Drone controls Flight operations, management tool, Sensors-Onboard storage capacity, Removable storage devices- Planning for Image Collection, decision on position angle of camera for image collection, decision on altitude of drone based on operation

UNIT III  MAPPING AND MODELING  15
Introduction to mapping and modeling concepts, Understanding RTK, PPK and GCP’s, Overview of popular data processing software platforms and functions.

UNIT IV  IMAGE PROCESSING AND PHOTOGRAMMETRY  15
Aerial Triangulation, post processing software’s, Analyzing Data, Orthomosaic Maps, 3D Point Cloud, Digital Surface Models (DSM), Digital Terrain Models (DTM)- Contour Maps-3D textured mesh, cut, fill and Volumetric Measurement Calculation and orthophoto generation.

UNIT V  APPLICATIONS  15
Application of Drone Images in Different sectors, use of drone image in urban planning, extraction of data from drone images and its uses in urban planning, Linked mobile devices and applications.

TOTAL : 75 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Explain about the about a various type of drone technology.
CO2 Plan to execute the suitable operating procedures for functioning a drone.
CO3 Choose appropriate sensors and actuators for Drones.
CO4 Classify different mapping and modeling
CO5 Choose appropriate image processing and photogrammetry software for processing.
CO6 Formulate procedure to use drone image in urban planning issues.

TEXT BOOKS

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BN3024 FUTURE CITIES L T P/S C

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OBJECTIVES

- To enable students aware and expose to changing scenario in the spatial order of cities and regions as well as the emergence of virtual societies in the World.
- To understand the impacts of various trends/factors that lead to the development of future cities.
- To enable the students to understand the use and power of emerging new technologies and social networks among communities across the city, country and globe.
- To provide information on current changes in city management aimed at ensuring better effectiveness and citizen’s engagement.
- To recognize factors determining quality of life and the use of city space with the ambition to inspire students to contribute to making cities a better place to live.

UNIT I  CITY AS AN ORGANISM – PLANNING AND TECHNOLOGY 9
Traditional settlements to modernity, spatial planning and technology interface, socio-economic planning and technology interface, planning cities and local technologies, technological innovations and responsive city planning, planning responsive technology versus technology responsive planning. City as the most complex human-made organism, Social and urban planning issues like public health, transportation, zoning, gentrification, cost of living, crime, and congestion.

UNIT II  CITY DYNAMICS -TECHNOLOGY-INFRASTRUCTURE 9
Understand a city’s people, components, functions, scales and dynamics, as precondition for its sustainable design and management. Transportation and technology, water, sanitation and technology, energy efficient technology for home, street, neighborhoods and city, telecommunication, health and education, security and safety for buildings and people in cities.

UNIT III  DIGITAL CITIES - URBAN ENERGY SYSTEMS 9
Digital cities, virtual cities, technology parks, smart planning and infill development; Planning, design and communication system, socio-economic and environmental impact of Techno Cities. Systems and hierarchy, Communication networks, Macro versus micro grid, Renewable sources of energy in India, Energy policy; National missions - Solar and enhanced energy efficiency.
UNIT IV DISPARITIES AND EQUAL OPPURTUNITIES - GOVERNANCE
Future of urbanization, Critique of neo-liberalism; power and hegemony; forms of marginalization; right to the city approach; Caste and religion –planning and designing for the differently-able persons, elderly, children, and pregnant women. Role of law and technology, administration and organization, industry and corporate, communities and people in building smart cities and smart communities, participatory planning.

UNIT V EMERGING TRENDS
Emerging school of thoughts and doctrines, Contemporary contributions to the changing planning paradigms; Planning for future and in future - vision development, strategizing, Implementation of planning policies and development plans, Toolkits, indexes and models developed to measure futuristic cities.

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able to:
CO1 Familiarize students with future city visions, roles, functions and the main opportunities and challenges facing cities.
CO2 To analyze city functioning and development by combining the economic, social, environmental, spatial and governance aspects.
CO3 Demonstrate familiarity about paradigm shift in the spatial planning outlook and governance edge.
CO4 Relate to a city in terms of theorizing cities through the lens of futurism.
CO5 Infer from various policies and programmes concerned to future development.
CO6 Categorize from various perspectives of planning special context to the future cities.

TEXT BOOKS

REFERENCES

CO-PO Mapping

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OPEN ELECTIVE COURSES

OBN351  PLANNING AND MANAGEMENT OF GREEN AND OPEN SPACES  L  T  P/S  C
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OBJECTIVES
- To understand Open Spaces as a critical element of value in planning.
- To impart open space planning methodologies through case studies.
- To demonstrate the ability to plan green urban structure.
- To create an awareness of the decisive influence of planning green open spaces on the living environment.
- To analyze what makes a public space part of sustainable urban green space.

UNIT I ELEMENTS OF OPEN AND GREEN SPACES
Green & Open spaces as an outcome of natural processes – Principles and techniques of design with landform, water and vegetation – role of surface materials – outdoor fittings and structures – open space and landscape elements – Man-made landscapes in history – comparative study of major traditions of landscape planning in relation to concepts of space and the use of landscape elements.

UNIT II URBAN OPEN SPACES
Characteristics and components of open space patterns in town and cities (traditional and contemporary) – basic types: streets, squares, plazas, gardens, ghats and maidan, public parks at district, local and neighborhood levels – park system – circulation networks and activity – street furniture as a component of urban landscape.

UNIT III URBAN GREEN SPACES
Design with nature concept – principles of understanding and evaluation of existing landscape – land suitability analysis – concept of landscape and urban green space for site planning and recreation – role of vegetation – environmental benefits, functional requirements, aesthetic considerations.

UNIT IV SPORT AND PLAY FIELDS

UNIT V MANAGING OPEN SPACES

TOTAL : 45 PERIODS

COURSE OUTCOMES
Course Outcomes: Upon the completion of this course, the students would be able:

CO1 Discover knowledge in urban open spaces and value of green environment.
CO2 Recognize and understand the functions of open space and its activities.
CO3 Understand the significance of urban green spaces and its management.
CO4 Identify the causes, effects and implications of promoting green and open spaces to the society.
CO5 Apply the principles of making green and open spaces in an urban environment.
CO6 Recognize different forms of green and open spaces and apply them for sustainable environment and social development.

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OBN352 TOURISM PLANNING AND DEVELOPMENT

OBJECTIVES
- To understand the fundamental concepts and key determinants of tourism
- To explore the impacts of tourism on urban development, the environment, and local social and economic development.
- To familiarize with the planning processes and components involved in tourism projects
- To familiarize with the importance of tourism infrastructure and their role in supporting tourism development.
- To examine tourism policies at the state and national levels

UNIT I INTRODUCTION TO TOURISM
Definitions, scope, nature, types, key determinants and characteristics of tourism; tourism hubs; tourism as an industry; growth of tourism in developed and developing world; problems and issues of tourism; sociology of tourism- leisure, recreation, travel and tourism

UNIT II TOURISM SECTOR- IMPACTS
Relationship between tourism and urban development; Tourism and environment; Tourism multiplier and forecasting methods; capacity building and carrying capacity; planning for tourism projects; cultural and social aspects, Eco- Tourism and local social and economic development; case studies

UNIT III PLANNING FOR TOURISM
Tourism plans,- plan components; social and spatial planning of origin- transit – destination planning; Role of multiple government authorities and agencies involved in tourism development; Tourism circuits- planning and development of region; case- studies

UNIT IV TOURISM INFRASTRUCTURE
Need for infrastructure support planning such as accommodation, transportation, water supply, solid waste disposal, health, safety and information system; Revenue streams and resources.
UNIT V  TOURISM POLICIES AND PROGRAMS

Tourism policies at the state and national level; Government and community interventions to develop tourism sector.

COURSE OUTCOMES

Course Outcomes: Upon the completion of this course, the students would be able:

CO1  Understand tourism and its various types and characteristics

CO2  Evaluate the impacts of tourism on urban development, the environment, and socio-economic development

CO3  Analyze the tourism projects considering social and spatial factors and involving multiple government authorities and agencies

CO4  Assess the importance of tourism infrastructure and its role in supporting tourism development

CO5  Evaluate tourism policies at the state and national levels and their impact on the tourism sector

CO6  Analyze case examples that foster the growth and development of the tourism sector from India and global perspectives.

TEXT BOOKS


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</table>

3- High 2-Moderate 1-Low