FIRST YEAR OF B.PLANNING : SEMESTER I

PLC – 101 PLANNING STUDIO – I **CONTACT HRS/WK = 09 (L=00,S=09, W=00)**
CREDITS = 09

Focus:	Graphics and Presentation Techniques.
Contents:	**Unit 1: Drawing Equipment and Mediums** Introduction to drawing equipment and mediums, Importance of graphics and visual presentations. **Unit 2: Use of Shapes** Use of points, lines, polygons; Horizontal, vertical, diagonal, curved lines; Line thicknesses and intensities; Texture, colour and tone in materials and graphics; Shapes and forms. **Unit 3: Concepts of Scales and Proportions** Sketching of human figures, activities, natural and man-made elements; Concept of scales and proportions; Graphic scales; Lettering. **Unit 4: Geometric Projections** Orthographic, isometric and perspective projections of one, two and three dimensional objects. **Unit 5: Measured Drawings** Architectural Building Drawings - Plans, Elevations, and Sections. Measured drawings for simple buildings. **Unit 6: Graphic Presentation** Graphic presentation of statistical data. **Unit 7: Base Maps and Key Maps** Scales of preparation of Base Maps at the levels of Site, Area, Zone, City, Region, etc; Preparation of Key Maps
Projects:	To draf small scale residence building along with graphical presentation.
Method:	Hand Drafting with the use of tools as Parallel, Set square etc. on Drawing Boards. Digital Software (Microsoft office)
Skills:	Development of Drafting and Drawing representation skills
Outcome:	● Understanding of graphic language for communication and preparation of technical drawings and basic concept.Apply visual and verbal communication skills at various stages of the design and delivery process. ● Student's understand and learn various types of plan, base map, land use map, site planning, area planning, transportation nodes and key maps. (basic understanding of Architecture drawings, detailed planning maps and Theory). ● Evaluate the significance of graphics in preparation of various types of plans. ● Develop conceptualizing skills and knowledge of isometric projections. ● Learning through technology students will be able to analyze statistical data by using various technologies.

PLC 102 TECHNICAL REPORT WRITING CONTACT HRS/WK = 03 (L=01,S=00, W=02) CREDITS = 02	
Focus:	Writing report along with proposal
Contents:	**Unit 1: Types of Reports** Types of reports; Difference between technical, scientific, legal and other types of communications; Specific characteristics of writing technical reports. **Unit 2: English Writing** English comprehension and oral communication; Presentation techniques in digital and oral format for group discussion in seminars and meetings. **Unit 3: Format and Elements of Reports** Preface, acknowledgements, contents, indexing, keyword indexing, introduction, body terminal section, appendices, References and bibliography; Use of Word Processing software; Literature surveys: Use of libraries, knowledge of indexing and available reference materials. **Unit 4: i) Site Appraisal and Visit Reports Communication** Special type of writing: articles and manuals; Planning and preparation of technical articles for publications; Popular articles; Site visit reports. **(ii) Research Structure and Methods** Intuition and research; Scientific research, need for scientific approach to research; Research methods; Hypotheses, testing of hypotheses; Reporting of research; Research in planning.
Method:	
Skills :	
Outcome:	● The course will enable students to learn and understand the technical functions of report writing, including letters, memos, emails, resumes, reports, proposals, technical description, technical definitions, and Articles etc… ● To learn the importance of following a format and elements of the report writing in planning courses.Students will demonstrate understanding of the guidelines used for creating useful figures, tables, referencing and citations. ● It is considered a major component of the research study as the research remains incomplete without report writing.

PLC – 103 FUNDAMENTALS OF PLANNING CONTACT HRS/WK = 02 (L=02,S=00, W=00) CREDITS = 02	
Focus:	Basics of Planning, its objectives and methods
Contents:	**Unit 1: Introduction to Planning Discipline** Defining planning as a discipline, multidisciplinary nature, and role of a planner, fields of planning- Urban, regional, environmental, transport and infrastructure. **Unit 2: Definitions and Bases of Planning** Various definitions of town and country planning; Goals and objectives of planning; Components of planning; Benefits of planning; Arguments for and against planning. Bases of physical planning. Planning Process and Levels of Planning in India. **Unit 3: Types of Plans** Types of plans:Definition of development plan; Types of development plans: Master plan, City development plan, Structure plan, District plan, Action area plan, Subject plan, Comprehensive planning, Zonal plans etc. Hierarchy of plans: Regional plan, Sub-regional plan; Sector plans and Spatial plans; Town planning schemes. **Unit 4: (i) Development Plans and Regulations** Definition of development plan; Types of development plans: master plan, city development plan, structure plan, district plan, action area plan, subject plan, town planning scheme, regional plan, sub-regional plan; Planning Advisory Group report and the UDPFI Guidelines; Sector plans and spatial plans; **(ii)** Defining development and development control regulations, types of development control; Implications of violations of development control regulations; Conforming and Nonconforming land uses; Compatible and non-compatible land uses.
Method:	
Skills:	
Outcome:	● Students will understand the fundamentals of planning and explore various types of plans, plan making process and their purpose.To learn and understand evaluate the various levels of development plans and development rules & regulations.

PLC – 104 ELEMENTARY ARCHITECTURAL DESIGN AND BUILDING CONSTRUCTION CONTACT HRS/WK = 05 (L=01,S=00, W=04) CREDITS = 03	
Focus:	Principles of Architectural Design
Contents:	**Unit 1: Principles and Elements of Design** Understanding of principles of design. Appreciation of principles of 2-D and 3-D composition. Project presentation modes through physical models, oral, digital and manual sketches. **Unit 2: Anthropometries and Layouts of Rooms** Anthropometries, Human Activity and Space Use; Furniture Layout of a room; Building circulation/ flow diagrams; Concepts of Space, Form and Function. **Unit 3: Architectural Space Standards** Introduction to Architectural Space Standards; Preparation of Design Briefs; Appreciation of different building types. **Unit 4: Building Design, Factors and Concepts** Factors and concepts related to building design - Climate, Site Characteristics, Landform, Visual Elements, Behavioral Factors, Space Utilization. **Unit 5: Introduction to Building Elements and Materials** Introduction to building elements such as Foundations, walls, roofs, floors etc. Building Materials-brick, timber, stone, R.C.C., Steel etc.Understanding the structural system of column-beam, load bearing wall and framed structure, roof, arching and vaults, post and lintel system etc.
Method:	
Skills:	
Outcome:	● To understand how different architectural styles evolved within the restraints imposed by prevalent social and cultural environment, availability of materials, climate and geography. ● To develop conceptualizing skills through software and hand skills. ● The students will understand the structural properties of various materials. ● Develops a skill of drawing making with understanding of scale construction materials and technology also develops understanding of site planning with infrastructure and environmental aspects.

PLC – 105 TECHNIQUES OF PLANNING CONTACT HRS/WK = 02 (L=02,S=00, W=00) CREDITS = 02	
Focus:	Developing an awareness of how social dimensions play an important role in shaping Built
Contents:	**Unit 1: Techniques of Preparing Base Maps** Choice of appropriate scale for region and settlement level plans; town development plans, zonal development plans, layout plans ;Graphical, linear and areal scales; Contents of base maps at various scales, notations-basic disciplines of maps; Measurement of Areas. **Unit 2: Database for Planning and Socio - Economic Surveys** Data requirements for urban and regional planning; sources of primary and secondary data; questionnaire design, measurement scale and their application, sampling techniques, types of socio-economic surveys; self-surveys, interviews, questionnaires and observer participation. **Unit 3: Physical Surveys** Techniques of conducting surveys for land use, building use, density, structural condition of buildings, heights of building, land utilization and physical features of land; Data requirement for various types of regional plans; Techniques for conducting regional surveys. **Unit 4: (i) Graphic Presentation of Statistical Data** Application of Statistical Data analyses and presentation in the context of planning- Tabulation of data, graphical presentation of data; pie diagrams, histograms, bar charts, normal, semi-log and double-log graphs and their uses; colour presentation techniques; basic disciplines of illustration and tables. **(ii) Graphic Presentation of Spatial Data** Land use classification, coding and analysis; residential and non-residential density patterns and analysis; colour, black and white presentation techniques; basic disciplines of illustration; Presentation of spatial data, analysis and proposals. Methods of analysis of Socio-Economic and Physical data; Use of techniques of Location Quotient, Coefficient of Localization; Location attributes of activity and population; Techniques for understanding structure of urban areas, land values and density patterns.
Method:	
Skills:	
Outcome :	● They will learn to need specific and statistical data through various surveys. ● They will learn to prepare graphical databases and derive results. ● Analytical Database for present and futuristic trends.

PLC – 106 SETTLEMENT SOCIOLOGY CONTACT HRS/WK = 02 (L=02,S=00, W=00) CREDITS = 02	
Focus:	Developing an awareness of how social dimensions play an important role in shaping the Built Environment.
Contents:	**Unit 1:** Understanding Sociology as a science; Sociological imagination and rethinking; Applied sociology. **Unit 2:** Sociological Perspective and Organizing Social Life Functionalist perspective, Conflict perspective, Internationalist perspective; Culture of space and cultural ecology; Social structure and social control; Stratification and social inequality; Social mobility and Social defiance. **Unit 3:** Social Institutions Family, kinship pattern and authority; Religion as social work and significance in planning; Voluntary associations (identifying NGOs and involving them as partners of development, operational issues); Groups (primary, secondary and reference groups). **Unit 4:** (i) Society and Urbanization Characteristics of Urban Social life; Process of Urbanization in India, Urbanization & Industrialization; Social issues of Urban life. Sociology and its relation to planning, Patrick Geddes's contribution in planning. **(ii)** Community Development induced displacement (anthro-social considerations); Resettlement and rehabilitation; Neighborhood pattern and development strategy; Rural and urban issues; Community based and workshop based methods; Qualitative data Analysis; Report writing. Gender and Development Gender and sex; Gender sensitive; Gender and development planning; Gender and implications for spatial planning.
Method:	
Skills:	
Outcome :	Students will develop ability to- Address social Questions/ Issues and ability to deal with the community for deriving Recommendations/ Solution and Implementation in the broad perspective for their lives. Exposure to the society/ sociology + Planning, Inter-relation between society and Planning its social components/ Terms. ● Culture ● Social Structure ● Religion ● Urban/ Rural ● Study/ Analysis ● Overall Development

PLC – 107 ENVIRONMENT AND ECOLOGY CONTACT HRS/WK = 02 (L=02,S=00, W=00) CREDITS = 02	
Focus:	Understanding Fundamentals of Ecology and impact of development on Environment
Contents:	**Unit 1:** Introduction Meaning and scope of ecology; evolution of ecology; Man, environment and ecosystem; Components of nature and basic concepts and processes of ecology. **Unit 2:**Scope of ecology: Flow of material water energy, invasion, succession, predation, regulatory forces, adaptation, trophic levels, food chain, food web, ecological pyramids; Environmental zones. **Unit 3:** Ecosystem and its Relevance to Environment Resources and human settlements impact of advanced agricultural methods, urbanization and industrialization on nature; Urban ecosystem approach evolution and significance; Soil, water, land, vegetation and solar, biomass, wind, hydro energy resources; Settlement planning and energy conservation; Development and management. **Unit 4: (i)** Environmental Policies Global and national policies on environment; Five year plans in relation to environmental aspects; Legal measure for protection of environment. **(ii)** Environmental awareness and education in India; Agencies involved in environment protection; Public participation; Role of planners in shaping the future environment.
Method:	
Skills:	
Outcome :	Students will develop Horizons to- Appreciate the Ecological concepts from socio-eco-Political purview and Evaluate the scenario and derive at the formation of policies and its implementation in various domains for sharing the future of Earth. ● Describe the characteristics of the major biomes and ecosystems of the Earth. ● Describe the interrelationships between land, sea, the atmosphere and the living thingsthat occupy these environments. ● Discuss the role that humans play in affecting the characteristics of the environment. ● Evaluate current environmental issues and problems including the solutions and management practices that have been used or offered to address these issues and problems.

PLC – 108 ELECTIVE **CONTACT HRS/WK = 05** **(L=00,S=00, W=05)** **CREDITS = 03**	
Focus:	To help students in exploring their aptitudes and in developing skills in any related field or in the field of their own interest.
Contents:	A number of subjects shall be offered as Electives. There are two groups of electives : A) Domain Specific elective B) Open Elective These electives shall be offered depending on the expertise/ faculty availability. Students need to register for one elective each from both the group of A and B.
Method:	
Skills:	
Outcome :	Students will develop a new understanding/ Knowledge/ Application skill development and exploration in the allied Domain or open subjects will be provided. The list will be – General or Domain specific which will include an integration of the other subjects. It can be in social service sector, Documentation in form of Interview, photos or videos or Open Ended Research based elective or NGO's.

FIRST YEAR OF B.PLANNING : SEMESTER II

PLC – 201 PLANNING STUDIO – II **CONTACTHRS/WK= 10** **(L=00,S=10, W=00)**
CREDITS = 10

Focus :	Site and Neighborhood Planning
Contents:	**Unit 1:** Site Analysis Site analysis, development standards and preparation of the design brief; Various considerations for site layout, conceptual approach to site planning. **Unit 2:** Layouts Preparation of preliminary layout and area analysis; Final layout showing the circulation and basic infrastructure. **Unit 3:** Planning Working Drawings Introduction to the working drawings; Preparation of plans, sections, elevations and important details of residential unit types. **Unit 4:** Designing and Planning Design and preparation of plan, sections and elevation of low rise and high rise apartments taking into account the building byelaws and zoning regulations; Preparation of presentation drawings. **Unit 5:** Rough costing of the scheme, preparation of the model to an appropriate scale.
Project:	
Skills:	
Outcome:	Students will learn the importance of site and Rural Neighborhood Planning/ Spatial Structure surveys of various types – demographics, political, Geographical, etc. ● To identify issues and concerns and Frame solutions from the studied analysis. ● Create policy measures including projects and it's estimate ● To create proposed technical drawings based on the identified projections and Issues of the core sectors of Planning.

PLC 202 COMPUTER APPLICATION - I	CONTACT HRS/WK= 04 (L=00,S=00, W=04) CREDITS = 02
Focus :	Familiarization with computer tools in planning process
Contents:	**Unit 1:** Drafting in CAD Need for automated design and drafting; Tools for automated designs and drafting; Elements of spatial data in CAD - Arcs, lines, rectangles, poly-lines, points, circles, donuts, layers, grids, snaps and object snaps, etc. **Unit 2:** Editing and Controlling Display in CAD Move, scale, copy, offset, change, trim, extend, mirror, divide, measure, array, break, hatch, block, zoom, regen, view, pan, fonts, etc. **Unit 3:** Data Conversions Paper maps, digital layout maps, on screen digitization; Base map evaluation, scanning the maps, digitization, scale conversion, symbolization, layer control, plotting and related commands. Exercises with case studies of small layouts and large scale regional level plans may be taken up. **Unit 4: (i)** Advanced Techniques Advanced features- x-ref, dynamic blocks, 2D and 3D conversion, perspective view, rendering, use of material finishes and lighting. **(ii)** Application of Other relevant software Use of Powerpoint and Multi-Media Projections, Data processing, word processing, presentation software like Photoshop, Google Sketchup, etc., spreadsheets and databases such as MS Office applications (Word, Excel, Access, PowerPoint)
Projects:	
Skills :	
Outcome:	Students will develop a skill of representing the Planning process by using Computer tools. To understand and practice AutoCAD as Drawing software. To create maps of various scales using softwares. To create basic MS Presentation and Data Analysis software based results such as- Excel and powerPoint, Sketch up, etc. To create presentation drawings using tools of AutoCAD – Perspective, Render, X-Ref, etc.

PLC 203 PLANNING THEORY – I	CONTACT HRS/WK = 02 (L=02,S=00, W=00) CREDITS = 02
Focus :	Various theories of Planning
Contents:	**Unit 1:Defining Planning Theory** Definitions of theory in general; Definitions of planning theory including theory of planning, theory in planning and theory about planning; Paradigms of Planning Practice by John Muller, Kuhn and others; Various issues in planning theory and practice. **Unit 2: Theories of Urban Structure** Theories of urban structure including Concentric Zone Theory; Sector Theory; Multiple Nuclei Theory and other latest theories; Land Use and Land Value. Theory of William Alonso on location and Land use; City as an organism: a physical entity, social entity and political entity. **Unit 3: Sustainability, Rationality and Globalization** Sustainability and rationality in planning; Components of sustainable urban and regional development; Globalization, internationalization, modernism and postmodernism debate; Impact of Information Technology on urban economics and politics; Compact city approach: concept, advantages and limitations; Forms of cities in developing world, Forms of cities in the developed world; Forms of cities in the former and present socialist countries. **Unit 4: (i) Participation and Planning** Public interest and its forms; History and significance of public participation; Methods of public participation; Impediments to public participation and conditions for effective public participation; Public participation and empowerment; Participation, policy formulation and implementation. **(ii) Planning, Implementation and Evaluation** Need for evaluation; Inseparability of planning and evaluation; Planning theories and evaluation; Methods of evaluating development plans; Theories of implementation of planning policies and development plans.
Method:	
Skills :	
Outcome:	Student shall be able to : Identify/ understand the historical movements by thinkers, planners, economists, sociologists etc. in various countries. Understand the details of sustainability, globalization and public participation approaches in planning practice. Analyze and learn the steps of planning and its implementation process. Rural development movements like the sarvodaya mission ignited by Mahatma Gandhi in the Indian context. Theory of Rural urbanization.

PLC 204 HOUSING AND COMMUNITY PLANNING CONTACT HRS/WK = 02 (L=02,S=00, W=00) CREDITS = 02	
Focus :	Planning for community housing and its amenities
Contents:	**Unit 1: Introduction** Significance of housing in National Development Goals; Equity and efficiency parameters of housing; Current issues in housing. **Unit 2: Assessing Housing** Existing Housing Statistics; Definitions; Urban and rural housing statistics; Introduction to concepts of Housing Shortage, Housing Need, quantitative and qualitative aspects of housing; Housing Demand - Understanding current methods of demand assessment; Knowledge of data sources and their use and interpretation; Census, NSSO and other data; Limitations of existing methods of assessments. **Unit 3: Housing Development Process** Understanding of factors affecting residential location, theoretical knowledge of ecological, neo-classical, institutional approach to housing; Housing subsystems and their characteristics: Formal and non-formal housing; Process of Public and private sector housing development process; policy context, actors and their interrelationships; Inner city housing, Slums, Squatter housing, Unauthorized Housing; Role of different institutions in housing; International agencies, NGOs, State, Financing Organizations, Private developers, cooperatives. **Unit 4: (i) Housing Standards and Design** Factors determining residential densities; Densities, costs and development control regulations; Housing designs parameters and their relationship to costs; Housing design and climate; Housing for disaster prone areas. Communities: its characteristics and housing; Socio-economic implication of slums, clearance/ improvement of slum; Sites and services schemes, squatter upgrading, incremental approach. **(ii) Housing Policy Analyses** Understanding and evaluation of Housing Policy and programmes in India; five year plans, Central government policy; Policy framework for urban and rural housing; Comparative policy analysis; Housing for the low income groups; Cooperative housing, objectives and principles; management and financing of housing projects; investment in housing in public and private sectors.
Projects:	
Skills :	
Outcome:	Student shall be able to : ● To analyze housing as an issue. ● To understand mass housing it's design and policy formation process. ● To create an approach of policy planning for mass housing.

PLC 205 SURVEYING AND PHOTOGRAMMETRY CONTACT HRS/WK = 03 (L=01,S=00, W=02) CREDITS = 02	
Focus :	Principles and theory of Surveying and learning photogrammetric as an alternative to surveying
Contents:	**Unit 1: Fundamentals of Surveying** Definitions, classifications, use, objectives and basic principles of surveying; Classifications of measurements and units, concepts of scales, maps and plan and use of conventional symbols; Stages in surveying works - field works, office works, care and adjustment of the instruments; Errors in surveying - sources and kinds. **Unit 2: Chain Surveying and Compass Surveying** Definition, application, advantages and disadvantages, principles; Instruments used, steps in chain survey; Definition of framework of survey, survey lines, survey stations, base line, tie line, check line; Ranging and chaining a survey line, off-sets - use and types; Errors and obstacles in chaining; Plotting chain survey to prepare a plan with practical examples. Definition of compass surveying, traversing, types of traversing, applications, advantages and disadvantages, principles and instruments used in compass surveying; Concept of bearings, meridian and angles, designation of bearing, fore bearing and back bearing, local attraction; Plotting of compass survey data to prepare a plan of a small area. **Unit 3: Plain Table Surveying and Computations of Areas** Definition, application, advantages and disadvantages of plane table survey; Instruments used, working operation, methods of plane table survey; Preparation of map of a small area with plane table survey. General methods of determining area; Instrument used and their principles for computing area;. **Unit 4: (i) Leveling and Contouring** Definition, principle, methods and application of levelling; Instruments used and the principles of their work; Concepts of level surface, level line, horizontal plane, horizontal line, vertical line, datum, bench marks; Theory of direct levelling, differential levelling and reduction of levels, classification of levelling and errors in levelling. Definition and application of contouring; Characteristics and interpretation of contour lines; Methods of locating contours. **(ii) Photogrammetric** Photogrammetric as an Alternative Tool for Surveying; Introduction to Aerial Remote Sensing and Aerial Photographs, Classification; Principles of Stereoscopic Vision; Basic instruments Stereo-pair, Pocket and Mirror Stereoscopes, Parallax Bars; Principles of Photogrammetric, Measurement of Heights and Depths; Introduction to Digital Photogrammetric; Introduction to GPS; Introduction to Total Stations; Applications in urban and regional planning; Laboratory Exercises
Projects:	
Skills :	
Outcome:	Student shall be able to : To understand surveying, its equipment and importance of surveying in Planning. To learn the implementation of survey methods through various equipment for a variety o geographical conditions. To learn application of advanced tools and techniques as photogrammetric to conduct surveys ir planning.

PLC 206 CENSUS, DEMOGRAPHY	CONTACT HRS/WK = 02 (L=02,S=00,W=00) CREDITS = 02
Focus :	Understanding significance of Census and interpretation of data contained therein for planning
Contents:	**Unit 1: Study of Population** Demographic variables: fertility, mortality, migration; Evolution of population study, contribution of Malthus; Mortality-trends, biological and social factors and mortality-gender, race, social structure, life style, social status, occupation etc; Measures of mortality-crude and age-specific death rates; infant mortality, adjusted or standardized death rates; Neonatal mortality rate; fertility-fertility trends, fertility and social and biological behavior; Differential fertility, ethnic groups, socio-economic group mobility, location etc.; Measures of fertility, crude birth rate; Age specific fertility rate **Unit 2: Study of Demography and Census** Source of demographic data; Census of India in conducting census and its role as a data warehouse population structure and composition, age sex composition, sex ratio, dependency ratio, child woman ratio; Measures of age-sex structure, age-sex pyramid, population composition; Marital status, cast region, literacy level, etc; life table techniques; Techniques in preparing life table, abridged life table. **Unit 3: Urbanization in India** A brief history of urbanization in India; Mughal and British influences of India cities; Post-independence urbanization; Urbanization process as influenced by socio-cultural, political, economic and administrative factors; Definition of urban centers, concepts of rural-urban continuum and dichotomy; Census definition of urban places town, cities, town groups, urban agglomeration, standard urban area metropolis, megalopolis etc. functional classification of urban places. **Unit 4: (i) Urban Area as Settlement** Settlement system, Census classification of settlements, primate city, rank-size rule, urbanization, industrialization and urban development; push and pull factors; Migration trends and impacts on urban and rural development. **(ii) Policies and Strategies for Directing Urbanization Trends in India** Overview of world urbanization, National 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; Salient features of the report of the national commission of urbanization.
Projects:	
Skills :	
Outcome:	Student shall be able to : To learn/ understand population as a resource and historical background of population surveys. To identify and learn the reading of census data. To analyze correlation of various census data and its implementable meanings. To understand urban, urbanism, urbanization issues in detail. To implement policy measures with the help of census survey data for current and futuristic Urban issues.

PLC 207 ENVIRONMENTAL STUDIES	CONTACT HRS/WK = 02 (L=02,S=00,W=00) CREDITS = 02
Focus :	Study of Impact of Climate on built environment
Contents:	**Unit 1 :Elements and constituents of Climate;** Climate and human shelter-factors shaping climate, climate and human comfort, Thermal body balance and heat exchange, comfort zone. **Unit 2:Building and its Climate:** Thermal balance of building, mechanical and structural climatic controls **Unit 3 Climatic factors** Air flow, Wind profile, Wind Speed, wind direction, local airflow and its impact on building, radiation and sunshine, temperature, humilities **Unit 4: (i) Urban Planning and microclimate and urban heat island** **(ii) Urban Geometry** Building Regulations, urban climate , urban geometry
Projects:	
Skills :	
Outcome:	Student shall be able to : To understand climate, climatic zone, variations of climatic zones and comfort factors. To learn to calculate comfort factors for various materials and various types of built masses. To analyze microclimate, relation of microclimate with reference to building regulations. To implement human comfort factors in Urban geometry and suggest measures in GDCR.

PLC 208 ENVIRONMENTAL STUDIES	CONTACT HRS/WK = 03	(L=00,S=00,W=05) CREDITS = 03
Focus :	To help students in exploring their aptitudes and in developing skills in any related field or in the field of their own interest.	
Contents:	A number of subjects shall be offered as Electives. There are two groups of electives : C) Domain Specific elective and D) Open Elective These electives shall be offered depending on the expertise/ faculty availability. Students need to register for one elective each from both the group of A and B.	
Projects:		
Skills :		
Outcome:	Student shall be able to : To learn and survey Techniques To implement analytical data assessments of qualitative and quantitative aspects. To understand interview techniques.	

B.PLAN-V: SEMESTER III	
PLC 301= PLANNING STUDIO - III CONTACT HRS/WK =12 (L=01,S=10, W=02) CREDITS = 12	
Focus :	Comparative Study of Unplanned versus Planned Area
Contents:	**Unit: 1** Site Analysis Site analysis, development standards and preparation of the design brief; various considerations for site layout, conceptual approach to site planning. **Unit: 2** Layouts Preparation of preliminary layout and area analysis; Final layout showing the circulation and basic infrastructure. **Unit: 3** Planning Working Drawings Introduction to the working drawings; Preparation of plans, sections, elevations and important details of residential unit types. **Unit: 4 (I)** Designing and Planning Design and preparation of plan, sections and elevation of low rise and high rise apartments taking into account the building byelaws and zoning regulations; Preparation of presentation drawings. **(II)** Costing rough costing of the scheme, preparation of the model to an appropriate scale.
Project	● Development Plan , Core city planning study, central building district, Industrial Township Planning
Skill	● Development of critical analytical understanding towards Comparative Study of Unplanned versus Planned Area
Outcomes	● To create base maps and present planning information on maps. ● To analyse the types of data required for planning and methods of data collection. ● To demonstrate an understanding about data analysis and to be able to examine data for understanding the existing situation in a settlement.

PLC 302COMPUTER APPLICATIONS-II CONTACT HOURS=04 (L=00,S=00, W=04) CREDITS = 02	
Focus:	**3D/REVIT/3DS MAX/ ARCHICAD**
Contents:	**Unit 1:** Drafting in CAD Need for automated design and drafting; Tools for automated designs and drafting; Elements of spatial data in CAD - Arcs, lines, rectangles, poly-lines, points, circles, donuts, layers, grids, snaps and object snaps, etc. **Unit 2:** Editing and Controlling Display in CAD Move, scale, copy, offset, change, trim, extend, mirror, divide, measure, array, break, hatch, block, zoom, regen, view, pan, fonts, etc. **Unit 3:** Data Conversions Paper maps, digital layout maps, on screen digitization; Base map evaluation, scanning the maps, digitization, scale conversion, symbolization, layer control, plotting and related commands. Exercises with case studies of small layouts and large scale regional level plans may be taken up. **Unit 4: (I)** Advanced Techniques Advanced features- x-ref, dynamic blocks, 2D and 3D conversion, perspective view, rendering, use of material finishes and lighting. **(II)** Application of Other relevant software Use of Powerpoint and Multi-Media Projections, Data processing, word processing, presentation software like Photoshop, Google Sketchup, etc., spreadsheets and databases such as MS Office applications (Word, Excel, Access, PowerPoint)
Method:	● Guided Computer based practice sessions
Skills	● Students shall become proficient with Computer aided designing.
Outcomes	● Create 2D and 3D computer drawings and models for studio projects. ● Evaluate computer aided design models.

PLC 303= TRANSPORTATION PLANNING	**CONTACT HOURS=02**	**(L=02,S=00, W=00) CREDITS = 02**

Focus :	.Basics of Transportation design and techniques
Contents:	**Unit - I Urban Transportation System Planning :** 1.1 Role of transportation in urban development 1.2 Transportation problems in urban areas 1.3 Purpose of transportation planning 1.4 Transportation planning process and factors affecting it 1.5 Travel demand and factors affecting it 1.6 Urban transport forecasting **Unit - II Transportation Surveys** 2.1 Study area and zoning. 2.2 Survey Types: Home interview surveys, Commercial vehicle surveys, Taxi surveys, Roadside interview surveys, Postcard questionnaire surveys, Registration number surveys, Tag surveys, Public transport surveys, Telephone surveys. 2.3 Inventory of existing transport facilities. **Unit – III Trip Generation and Distribution** 3.1 Trip generation: Trip purpose, Problems of trip generation 3.2 Factors governing trip generation and attraction rates 3.3 Trip distribution 3.4 Methods of trip distribution: Uniform factor, Average factor, Detroit, Fratar, Furness and Time factor method 3.5 Problems based on trip distribution **Unit – IV (I) Modal Split** 4.1 Modal split: in the transport process planning problem and factors affecting modal split 4.2 Trip Characteristics in urban areas: Household characteristics, Zonal characteristics, Network characteristics **(II) Transportation Plan Preparation** 5.1 Definitions: corridor, corridor traffic forecasting, corridor traffic study, count, segment, point, segment capacity, screen line 5.2 Corridor identification 5.3 Mass transit system 5.4 Urban mass rapid transit system 5.5 Rail based transit – Metro, Light rail transit system (LRT), Mono rail, Sky rail 5.6 Road based transit – Bus rapid transit system (BRTS), Electric trolley bus, commuter Bus / City Bus
Method:	● Classroom Lectures shall be conducted
Skills	● Thorough understanding related to traffic design and assessment method
Outcomes:	● To plan for the conduct of field surveys, examine and analyse data and information collected through various field surveys, perform analysis. ● To make presentations of traffic and transportation data in relation to human settlements and to identify the issues related to traffic and transportation planning.

PLC 304= LAND ECONOMICS	CONTACT HOURS=02	(L=02,S=00, W=00) CREDITS = 02

Focus :	Understanding basics of Economics and its relevance to physical planning Introducing basic items, concepts and theories drawn from economics as commonly applied in 'planning'.
Contents:	**UNIT I:** Economic concepts of land: objectives and scope of land economics – its relevance to spatial planning. Economic principles of land use., demand forecasting for land use factors affecting land supply and demand. Land Policy and Land Markets: Market conditions: formal-informal, legal – illegal, instruments of land policy and its effect on development instruments, Taxation instruments, Legal instruments, Supportive instruments. Markets by government regulation, monopoly power and use control. Government by Markets: private development initiatives, rent-seeking and its effect on land supply and demand, poor are accessing land markets. **UNIT II:** Supply Management: Property Rights: ownership right, user right, and exchange right – its implication on land supply, type of land development, cost of development, and method of disposal. Corruption and land markets: corruption, black money and land markets. Regulation in land markets: Social justice and land distribution, public domain, social – democratic regulation, state regulation, market led regulation, corporatist regulation, Collective action of the state and regulation of supply of land –over all impact of regulation on land prices. Master Plan, Zoning and other planning regulations and their impact on supply. Private land assembly, co-operatives in land pooling and plot reconstitution, land sharing, land lease, land readjustment techniques and their effect on supply. **UNIT III:** Demand side Management: Income elasticity of land, business cycles and its impact on demand for land, externalities and internalities in land development and induced demand, economic growth and demand for land, changes in income, tastes and preferences and its effect on type of demand for land, urban poor and their demand. Cost of land development and its impact on demand. Housing Finance Market and its impact on land. Physical, Fiscal, Financial and legal incentives for inducing or restricting the demand for land. **UNIT IV.: (i)** Land Pricing : Land valuation – techniques; land pricing, subsidies, auctions, types of development: plotted, flat system, etc. and their effect on land pricing. Land price behavior in metropolitan centers in India and abroad. Constructing the land price index. **(ii)** Real Estate Markets: Market conditions, Real Estate cycles, market fluctuation, market efficiency, market forecasting, type of property development and its impact on supply and demand, method of development: public, public-private, private, community property and its impact on real estate markets. Cartels, collusions, and rent-seekers in the real estate market. Agents in the real estate market and their role in the market process. Speculations, Risks, Options, hedging, and market access by different interest groups in the real estate market. Land Information System: Land records, Transparency in land transaction, methods on publicizing
Method	● Classroom Lecture based
Skills	● Develop understanding related to real estate market and economics
Outcomes:	● To develop basic understanding of some of the key economic concepts and their application in planning. ● To analyze the working real estate markets and evaluate the nature of these markets.

PLC 305 QUANTITATIVE RESEARCH METHODS CONTACT HOURS=02 (L=02,S=00, W=00) CREDITS = 02	
Focus :	Research Methods dealing with statistics and its interpretation
Contents:	● **UNIT 1:** Introduction : Statistical data and methods; Collection of data, record, file, sources of data; questionnaire design. **UNIT II:** ● Sampling AND Data Presentation, ● Statistical Methods **UNIT III:** Probability and Sample distribution ● Correlation ● **UNIT IV**: ● Linear Regression Analysis ● Time Series Analysis ● Index Number ,referencing and bibliography and citation methods
Method:	Classroom study, presentation and discussions
Skills:	Research method and its application
Outcomes:	Students should learn approaches, concepts & Application of research methods.

PLC 306 ENVIRONMENTAL STUDIES II	CONTACT HOURS=02	(L=02,S=00, W=00) CREDITS = 02

Focus :	**Geology and Hydrology**
Contents:	**UNIT I:** Introduction: Definition, brief history, scope, and limitations of Geotechnics. Origin and Nature of Soil: Geological cycle, Physical and chemical agencies for soil, Formation - residual, transported, alluvial, marine and lacustrine, glacial drift, loess and colluvial soils. General characteristics of different types of soils. Overview of different types of soils in Gujarat / India. Index Properties, Relationships and Tests: Phase diagram, Basic terms and definitions, Functional relationships,Determination of index properties, Relative density for granular soil. Particle Size Analysis: Size and nomenclature of soil particles as per IS, Sieve analysis, Sedimentation analysis, Particle size distribution curve and its uses. **UNIT II:** Soil Water: Free water and held water, Structural water and absorbed water, Capillary Permeability and Seepage: Darcy's law and its validity, Factors affecting permeability, Laboratory permeability tests, Introduction to field permeability test, Permeability of stratified soil masses, Laplace equation (2 -D), Seepage pressure, Quick condition, Flow net, its characteristics and application. **UNIT III:** Physical Geology: Branches and scope of Geology; Surface processes and landforms: Weathering and Erosion; Introduction to geological agents (river, wind, oceans, glaciers, groundwater) and their actions (erosion, transport and deposition). Interior of the Earth: internal structure of earth, study of core, mental and crust of the Earth. Processes responsible for volcanism (Process of volcanic eruption, types of volcanoes and volcanic hazard) and earthquake (Causes of earthquake occurrence, Distribution (seismic zoning), Seismo -tectonic setup of India, seismic hazard: Tsunamis, Active fault rupture, liquefaction). **UNIT IV:** **(i)** Geological time -scale and laws of stratigraphy: Introduction to geological time scale and stratigraphy, Laws of stratigraphy. Structural geology: Introduction to primary and secondary geological structures. Study of geological faults, folds, joints and active faulting. Their origin, types and engineering consideration. Geological mapping: study of Strike and dip using models and numerical problems, preparation of geological cross section. **(ii)** Hydrogeology: Hydrological cycle and groundwater occurrence.
Method	● Classroom study ●
Skills	● Understanding of ecological features of geology and hydrology
Outcomes	● Awareness of a wide range of environmental concerns and ability to act at their own level to protect the environment we all live in.

PLC 307 ELECTIVES- III	**CONTACT HOURS=05**	**(L=00,S=00, W=05) CREDITS = 03**
Focus :	● To help students in exploring their aptitudes and in developing skills in fields of their choice.	
Contents:	● NPTEL BASED COURSES i.e. Transportation Planning Urban and Regional Planning in India etc.	
Method	● Online teaching learning method	
Skills	● Student shall gain knowledge about prevalent issues and updates of the field	
Outcomes	● To develop understanding of varied diversified fields.	

B.PLAN-V: SEMESTER III

PLC 401PLANNING STUDIO-IV **CONTACT HOURS=12** **(L=01,S=10, W=02)**
CREDITS = 12

Focus :	Comprehending Plan making process by making an area Plan.
Contents:	● Approaches to Plan Making ● Hierarchy in Plans and Relationship among Plans ● Framework for Zonal Plans ● Planning Standards ● Zonal Plans/Area Plans **Unit 1:-** Site Analysis Site analysis, development standards and preparation of the design brief; Various considerations for site layout, conceptual approach to site planning. **Unit 2:-** Layouts Preparation of preliminary layout and area analysis; Final layout showing the circulation and basic infrastructure. **Unit 3:-** Planning Working Drawings Introduction to the working drawings; Preparation of plans, sections, elevations and important details of residential unit types. **Unit 4:-** Designing and Planning Design and preparation of plan, sections and elevation of low rise and high rise apartments taking into account the building byelaws and zoning regulations; Preparation of presentation drawings. **Unit 5:-** Costing Rough costing of the scheme, preparation of the model to an appropriate scale.
Method	● Discussion and studio based exercise
Skills	● Comprehensive Plan Development
Outcomes:	● To create base maps and present planning information on maps. ● To analyse the types of data required for planning and methods of data collection. ● To demonstrate an understanding about data analysis and to be able to examine data for understanding the existing situation in a settlement. ● To learn process & evaluation of area planning.

PLC 402 = GEO-INFORMATICS & GIS IN PLANNING CONTACT HOURS=04 (L=0,S=00, W=04) CREDITS = 02	
Focus :	**Use of geographic information systems as a tool for planning**
Contents:	**UNIT I:**COORDINATE SYSTEM AND GEO-CODING : Common coordinate system Cartesian polar, global, latitude, longitude , storing coordinate, prison, map projects, manipulation, curvilinear , transforming, analysis & modeling discrete geo referencing, street address, house numbering. **UNIT II:**VECTOR DATA STRUCTURE AND ALGORITHMS: Storage of complex spatial objects, storage of uses, simple algorithm for line intersection, polygons and polygon overlay operations, cut and fill proximity, corridor. **UNIT III:**RASTER DATA STRUCTURE AND ALGORITHMS: Raster storage, hierarchical data structure Quadtree algorithms and indexes.DATA STRUCTURE AND ALGORITHMS FOR SURFACES AND TIME: Digital Elevation models TIN data structure spatial interpolation, 3D and temporal database 3D Data models derivatives statistic .DATABASES FOR GIS Concept **UNIT IV:(i)** ERROR MODELING & DATA UNCERTAINTY: Accuracy of partial databases managing errors, Fractals, Line generations. VISULISTAICS OF SPATIAL DATA- Visualization, color theory. DECISION MAKING IN GIS CONTEXT: Multiple criteria methods location Allocation on network , Spatial decision support system. **(ii)** GIS IMPLEMENTATION : Implementation issues and implementation strategy. OTHER GIS ISSUES: GIS standards, legal issues, development of a Nation GIS Policy, knowledge based technology and the future of GIS.
Method	• Computer based guided Training
Skills	• Proficiency in GIS and Remote Sensing
Outcomes	• Explore mapped data • Relate GIS with remote sensing technologies • Analyze spatial data, using GIS analysis tools • Develop and manage geodatabases • Apply Python as a GIS computer language • Create maps, images and apps to communicate spatial data in a meaningful way to others

PLC 403 PLANNING PRACTICES AND URBAN GOVERNANCE **CONTACT HOURS=02 (L=02,S=00, W=00) CREDITS = 02**	
Focus :	Comprehending Plan making process by making an area Plan
Contents:	**UNIT I:** Concepts of law: Source of law (i.e. custom, legislation and precedent), meaning of terms of law. Legislation Ordinance, Bill Act., Regulations and Bye-laws. **UNIT II:** Significance of law and its relationship to Urban Planning : benefits statutory backing for schemes-eminent domain and police powers. Indian Constitution concept and content. Provision regarding property rights legislation competence of State and Central governments to enact town planning/environmental legislation National Environmental Policy Act. **UNIT III:** Evolution of planning legislation. An overview of legal tools connected with Urban planning and development. Town and country Planning Act. .Improvement Trust act Urban planning and development Authorities Act objectives, contents procedures for preparation and implementation of Regional plans, Master plans and Town Planning Schemes **UNIT IV:(i)** Concept of Arbitration: betterment levy, development charges and public participation in statutory planning process. Concept of structure plan, local plan and action plan under the English Law. Environmental Protection Act, 1986 concept of CRZ & its application. Land Acquisition Act. 1884 basic concept procedure for compulsory acquisition of property and determination of compensation. Urban land (Ceiling and Regulations)Act 1976- objectives, contents and planning implications, repealing of the Act and its implication. Rent Control Act & its implication on urban and value. **(ii)** Legislation relating to urban conservation and restoration. Historical monuments archeological sites; and remnants of national importance. Contract Law – contract management – execution of projects.
Outcomes	● To explain the evolution of the idea of governance. ● To analyse the role of the third sector, and to develop knowledge of constitutional amendments as they impact urban and regional governance. ● To demonstrate knowledge about the basics of land administration and management.

PLC 404 PLANNING THEORY II CONTACT HOURS=02 (L=02,S=00, W=00) CREDITS = 02	
Focus :	Various theories in Planning Contents:
Contents:	**Unit 1:** Scientific Rationalism and Planning Defining instrumental rationality; Systems view of planning with a focus on contributions of J.B. Mcloughlin and others; Main characteristics of Comprehensive Rational Planning Model and implications for planning practice; Systemic change Unit 2: Advocacy Planning, Pluralism 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 3: Political Economy Theories and the City Defining the term political economy; Role of the state in planning; Contributions of David Harvey, Manuel Castells and others; Richard Foglesong and the property contradiction. Unit 4: 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. Unit 5: Capabilities, Race, Gender, Religion and Caste Defining functioning and capabilities; Exploring relevance of 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.
Method	● Classroom Study
Skill	● Understanding valuation and arbitration
Outcomes	● Develop proficiency in valuation. ● Develop capabilities to offer advisory/consultancy services in the area of valuation.

PLC 405 PLANNING FOR RURAL DEVELOPMENT CONTACT HOURS=02 (L=02,S=00, W=00) CREDITS = 02	
Focus :	Development of Rural areas and development schemes
Contents:	● **Unit i:** ● Introduction to Rural Development ● **Unit II:** ● Roots of Rural Development in India ● **Unit III:** ● Post-Independence Rural Development ● **Unit IV:** ● Post 73rd Amendment Scenario and Government Schemes
Skill	● Develop awareness about rurbanisation
Method	● Project based study
Outcomes	● Gain insight into the socio-economic structure of rural India. ● understand the prospects and problems of rural development in India

PLC 406	SUSTAINABLE DEVELOPMENT CONTACT HOURS=02 (L=02,S=00, W=00) CREDITS = 02
Focus :	Impact of development on the environment and methods to mitigate its ill –effects.
Contents:	● **Unit I**: Concept and Issues ● **Unit II**: Methods and Techniques ● **Unit III**: Land, and Energy Resources ● **Unit IV: (i)** Role of Water **(ii)** Air Quality & Solid Waste Management
Skill	● Improve the understanding of the sustainability
Method	● Develop understanding of sustainability and its role in development planning
Outcomes	● By the end of the course students should be aware of basic components of sustainable city development.

PLC 407 Electives- IV CONTACT HOURS=05 (L=00,S=00, W=05) CREDITS = 03	
Focus :	To help students in exploring their aptitudes and in developing skills in fields of their choice.
Contents:	● NPTEL BASED COURSEs i.e. Transportation Planning Urban and Regional Planning in India etc. 1. Tourism Planning 2. Heritage Conservation & Preservation 3. Traffic & Transportation 4. Planning for Informal Sectors 5. Development of water bodies & natural resources 6. Wastewater management 7. Urban Infrastructure 8. Campus Planning 9. Affordable and Cost Effective Housing 10. Census Information Analysis
Skills	● Online teaching learning method
Method	● Student shall gain knowledge about prevalent issues and updates of the field
Outcomes	● To develop understanding of varied diversified fields.

THIRD YEAR BACHELOR IN PLANNING

PLC 501 PLANNING STUDIO - V CONTACT HOURS=12; (L=01,S=09, W=04) CREDITS = 12

Contents:	**Unit 1: Studying Development Plans** The study shall involve understanding of contents of various types of development plans and explore the focus of each. **Unit 2: Selecting the Case City or Town** Identification and preparation of secondary source information of the towns or cities selected for the study. **Unit 3: Organization of Field Surveys** Visit to the case study area, collection of primary and secondary data and information on various aspects such asDemography, social, economic, housing, transportation, etc.; Conduct of primary and secondary surveys. **Unit 4: Analysis and Synthesis** Analysis and synthesis of data and information collected on various aspects; Projections of population and workforce; Trends and issues identification. **Unit 5: Plan, Policies and Proposals** Preparation of policies and proposals with different scenarios and identification of priorities and action areas; Phasing and monitoring; Governance structures for implementation; Land use plan and the plan document
Method	● Studio based teaching learning method
Skills	● Student shall gain knowledge about prevalent issues and updates of the field
Outcomes	● Students will be able to understand the detailed process of development plan proposal making. They will understand the role of elements of the Development Plan and their interdependencies. They will be able to understand the Policy outcomes of the proposed development plan..

PLC 502 PROJECT FORMULATION AND APPRAISAL **CONTACT HOURS=03; (L=02,S=00, W=00) CREDITS = 02**	
Focus :	**Hands-on experience of evolving a project proposal.**
CONTENTS:	**Unit 1:**The concept of projects, Project formulation: definition, objectives; Importance of project formulation, appraisal and management; Stages of project formulation and their significance; Methodology for project identification and formulation;
	Unit 2: Project Appraisals Project formulation: definition, objectives; Need for project appraisal; Project formulation: definition, objectives; Stages of project form Network analysis; CPM, PERT, resource leveling and allocation, time-cost trade off aspects; Bar charts,milestones, standard oriented cost control techniques; Techno-economic analysis of projects. Feasibility studies, input analysis, financial cost-benefit analysis, social-cost benefit analysis; Project appraisal and report.
	Unit 3: Project Implementation Project implementation, stages of implementation, teamwork, actors in project implementation;
	Unit 4: Project Monitoring Project monitoring: meaning objectives and significance; Monitoring techniques: integrated reporting, milestones, time and cost overrun and underrun, unit index techniques.
	Unit 5: Project Evaluations 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. Techniques of financial appraisal, payback period, IRR, DCF, NPV, CBR.
Method	Classroom Study
sKILLS	**Hands-on experience of evolving a project proposal.**
Outcome:	Learning of this subject will enable students with understanding of project formulation and appraisal process. They will learn about the complexities with project implementation and monitoring phase. Students will be able to understand various evaluation and analytical methods for overall project evaluation.

PLC 503 PLANNING LAW AND LEGISLATIONS CONTACT HRS/WK=02 (L=02,S=00,W=00) CREDITS=02	
Focus:	Understanding legislations as tools for planning and development
Contents: ;	**Unit 1: Concept of Law and Indian Constitution:- (i)** Sources of law (Legislation, delegated legislation and precedent); Meaning and Significance of Law, Legislation, Ordinance, Bill, Act, Regulations and Bye-laws and relationship of each of the term to planning;Benefits of statutory planning.
	(ii) Brief contents of Indian Constitution with special reference to fundamental rights and duties of citizens, Right to Property; Directive principles of state policy, distribution of legislative powers for enactment of laws; Evolution of Planning Legislation and overview of legal tools connected with Urban Planning and Development, Model Town Planning Laws;
	Unit 2: Laws and Acts for Planning and Development Evolution of Urban and regional planning Legislation in India; 73rd and 74th Constitutional (Amendment) Acts; ModelTown and Country Planning Acts & UDPFI Guidelines, Proliferation of Laws (Municipal Acts, Urban Development Authority Acts, Housing Board Acts, Improvement Trust Acts, Slum Improvement Acts etc); Environmental & Pollution Control Acts.
	Unit 3: Land Acquisition Act Introduction to Land Acquisition Act, 1984; Historical background, need, advantages, limitations Relevance in today's context; Case studies highlighting nature of contention, parties in dispute and the decisions in specific planning dispute. Eminent Domain and police powers; Case laws in respect of land acquisition and compensation.
	Unit 4: Organizations for Plan Implementation Role of different state agencies for plan implementation; Methods of coordination between planning and implementation agencies; Statutory town planning schemes, contemporary Model schemes of some states; Significance of enforcement and single window system.
Method	Classroom Study
Skills	Understanding and awareness of legislation
Outcome:	Understanding of Law and Legislation, guidelines and codes, Role of various planning and Implementation agencies will make the complex planning process easy to explore.

PLC 504 PUBLIC FINANCE and VALUATION CONTACT HRS/WK=02 (L=02,S=00, W=00) CREDITS=02	
Focus:	Comprehending Financial applications of projects and mechanism for mobilization of financial resources.
Contents:	**Unit: 1 Multiple Finance** Nature and composition of income and expenditure, limitations and need for revenue enhancements; Expenditure control methods and mechanisms; Budgetary allocation from Central and State Governments for urban development; Assistance from foreign donors and MultiNational agencies; Non-traditional sources of funding; Market access; Pool finance and prerequisite conditions for accessing non-traditional funds ● Fundamentals of Valuation
	Unit: 2 Additional Funding sources Types of partnership approaches; Privatization of civic services; Public private partnership mechanisms; Types of contracts and ownerships; Emerging cost effect technology interventions; User charged projects; Pricing of services. ● Methods of Real Property Valuation
	Unit: 3 Resources 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. ● Contract Documents
	Unit: 4 Institutional Capacity Enhancements (i) Better finance management, management process; Accounting and budgeting, asset management, receivables Management, cost centre approach; Computerization as tool for resource enhancement; Role of Management Information Systems. ● Project Formulation
	(ii) Plan forms and Indices 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.
Skills	Understanding of various project financing mechanisms and financial resources
Method	Classroom Study
Outcome:	Understanding of various project financing mechanisms and financial resources will enable students to choose appropriate finance resources and mechanisms.

PLC505 INCLUSIVE PLANNING AND DEVELOPMENT **CONTACT HRS/WK=02 (L=02,S=00, W=00) CREDITS=02**	
Focus:	**Understanding the needs of specially challenged people and planning for it.**
Contents:	**Unit 1: Understanding Inclusive Planning** Definitions and components
	Unit 2: Analysis of Stakeholders Profile and needs, access to shelter, services and livelihoods**:** Urban Poor, Informal Sector, Gender, Children, Elderly, Disabled, Displaced people etc.; Slums -dimensions, causative factors, determinants, location characteristics of settlements; Informal sector -growth, characteristics, functions, economic contributions, linkages with formal sector, impact on Urban Development
	Unit 3: Participatory Planning Process Methods, role of stakeholders (incl. civil society organizations), etc.
	Unit 4: (i) Planning interventions Inclusive zoning, development and building regulations, slum development **(ii) Plans, Policies and Programs, Legislation** Related Acts, Five year plans, policies and programs at various levels
Method	Classroom Teaching
Skills	understand inclusiveness
Outcome:	Learning this subject, students will understand inclusiveness as one of the core and inevitable values for successful planning and development.

PLC 506 URBAN SERVICES CONTACT HRS/WK=02 (L=02,S=00, W=00) CREDITS=02	
Focus	Understanding services as life lines of human settlement and planning for it.
Contents:	**Unit 1: Introduction, Basic Concepts and Theories** 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, familiarizing with CPHEEO manual and guidance.
	Unit 2: Storm Water System Definition of Hydrology, classification, hydrological cycle, urban water cycle; Types precipitation, measurement of precipitation, intensity-duration-frequency relationships, rainfall formula, rainfall maps, significance of interpretation and presentation of rainfall data; Surface water runoff, rational method for estimating runoff, unit hydrograph and its application, definition of watershed; Flood frequencies, flood protection measures in urban areas. Estimating storm runoff, runoff co-efficient, rainfall intensity, time of concentration; Gravity flow, hydraulic gradient line, Manning's formula and nomographs, layout and design of storm water system; General considerations, inlets, self-cleansing velocity, non scouring velocity, physical layout-design principles, data requirement; Hydraulic design of storm water system and computation procedure
	Unit 3: Water Supply Systems Surface and groundwater sources, quality and quantity requirements, collection and conveyance of water, water requirement for various land uses, factors affecting water demand, per capita requirement and its relationship with population sizes, variation of water consumption, treatment methods, treatment plant location, planning of water supply system and their zoning with respect to urban structure, basic design guidelines and layout of water supply distribution system, water distribution systems in buildings and their design, financing water supply systems, case study discussion on innovative methods and successful urban water supply system, significance and methods and advantages of water harvesting system, government initiative for water harvesting system and case study discussion.
	Unit 4: Sanitation and Sewer System:- (i) Sewage disposal methods and their advantages and disadvantages, quantity of sewage, low cost appropriate technologies for sanitation, standards for Indian cities, characteristics of waste water, Industrial pollutants and their effects, sanitary sewer system network and layout, procedure of planning, sewer appurtenances, case study of innovative approaches of sewage disposal in urban area. **(ii) Solid Waste Management** Elements of solid waste management, classification and characteristics of solid wastes, on site collection, storage,transportation and disposal of solid wastes, processing and treatment of solid wastes, incineration.
Skills	Understanding of complex and interdependent service network of urban area
Method	Classroom Study and site visits
Outcome:	Students will be able to explore each service system independently and as a sub entity of a complex and interdependent service network of the urban area and its neighborhood. They will understand that management of Urban services, their infrastructural needs is crucial for any urban development.

PLC 507 Electives- IV	CONTACT HRS/WK=05 (L=0,S=0, W=5) CREDITS=03
Focus :	To help students in exploring their aptitudes and in developing skills in fields of their choice.
Contents:	● NPTEL BASED COURSEs i.e. Transportation Planning Urban and Regional Planning in India etc. 1. Tourism Planning 2. Heritage Conservation & Preservation 3. Traffic & Transportation 4. Planning for Informal Sectors 5. Development of water bodies & natural resources 6. Wastewater management 7. Urban Infrastructure 8. Campus Planning 9. Affordable and Cost Effective Housing 10. Census Information Analysis
skillsL	● Online teaching learning method
Method	● Student shall gain knowledge about prevalent issues and updates of the field
Outcomes	● To develop understanding of varied diversified fields.

PLC 601 PRACTICAL TRAINING CONTACT HRS/WK=40 (L=0,S=40, W=0) CREDITS=25	
Focus:	To develop an understanding of the process and methods of undertaking live planning projects and participate in multidisciplinary teams undertaking various aspects of spatial planning including exploring specialized fields.
Contents :	The students must complete a minimum of sixteen weeks of training in a Planning firm. They are required to participate in each activity of the organization for a minimum period of twelve week. Maintaining a weekly report file and recording their activities during training period in detail (refer Guidelines for Office Training given) .The student is also expected to do case study of one project that he/she is associated with, during his training period. This study should include a complete documentation and analysis of the planning project right from its formulation, collection of relevant data. Details which are deemed confidential by the firm should not be included in the study report, which must be submitted along with the Weekly Report File. Thrust of the Report would be on specific projects that the student may be part of, describing the background,context, methodology, policy framework and proposals (if any) of the project.The students would be evaluated on the basis of the report submitted and presented as a seminar at the time ofViva-Voce and the report received from the organization.
Method	Office Training
Skills	Learning practical approach of the Planning
Outcome:	The practical training enables students with the applicability of planning concepts and theories. The complex handling of participation process, teamwork and field work explores exercising theory in practice.

B. PLAN -IV: SEMESTER VII		
PLC 701 PLANNING STUDIO - VII	**CONTACT HRS/WK = 14**	**(L=0,S=10, W=04) CREDITS =12**
EMPHASIS:	Preparation of a Regional Planning	
CONTENTS:	**Unit:- 1 Introduction to Region** : Concept of Regional Planning: nature, objectives, levels and aims; Concept of a region, types, and regionalization. Role and relevance of Regional Planning at district or block level , 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. **Unit:- 2 Interactions within a Region** : Regional interaction: Rank Size Rule, Settlement patterns; Central Place Theory; Loschian theory; Regional networks. **Unit:- 3 Regional Development**: Regional development; Balanced and unbalanced development; Under-development; Regional multiplier, input-output model; Linear programming applications; Cumulative causation theory; Core periphery model; Growth poles and centres. District planning in the context of Constitution 73rd and 74th Amendment Acts; District Planning Committees; Metropolitan Planning Committees. **Unit:- 4 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. planning process under DPC and MPC. Organization of Field Surveys; Formulation of goals, objectives, methodologies; Identification of data and sources of information; Collection of secondary and primary data for sectoral and spatial planning; Detailed Data Analysis **Unit:- 5 Case Studies :**Selected case studies in regional development like Rajasthan Canal Area, South-East Resource Region, Western Ghats Region, National Capital Region, Mumbai Metropolitan Region, etc. 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.	
OUTCOME:	Students will understand thoroughly the various stages involved in making a Regional Plan. Students will prepare a Regional Plan based on the set of conditions/issues identified in the study area.	

PLC 702 THESIS ORIENTATION CONTACT HRS/WK=2 (L=2,S=0, W=0) CREDITS = 02	
EMPHASIS:	To introduce students to basic literature, research process, techniques and colloquial arguments, so as to help them finalize a topic for their Dissertation.
CONTENTS:	**Unit I: Dissertation Programming** Identification of topics of interest having relevance to planning profession, integration and application of the learnt research process to the pre-thesis work. Planning colloquium: Exposure to the colloquial arguments by the stakeholders, decision makers, urban managers, advocates, technocrats, user groups, etc. Based on the inputs from the colloquial arguments, the topics shall be finalized for Dissertation. **UNIT II: Research Techniques** Data collection and analysis: Sample determination, data tabulation (coding, de-coding, etc.), quantitative and qualitative data analysis. Introduction to advanced statistical techniques such as, decision trees, factor analysis, fuzzy logic, multiple regression, multi variance, cobweb, logit and probit models, etc. **UNIT III:** Testing of hypothesis: Statistical hypothesis, simple and composite tests of significance, null hypothesis, types of errors, level of significance, critical region, etc. **UNIT IV: Research Process** Problem identification, formulation of problem statement, literature review, working hypothesis, research brief, research methodology, sample determination, data collection and analysis, report structuring. Project Formulation to be carried forward towards a logical end in the next semester,
Method:	Individual level classroom discussion and research guidance
Skills	Formal Writing, inquisitiveness and research thinking development in students
OUTCOME:	Students will be able to understand Research; Research Design; steps involved in the research process, formulation of project proposal.

PLC 703 DISASTER MANAGEMENT CONTACT HRS/WK =02 (L=2,S=0, W=0) CREDITS =02	
EMPHASIS:	Implications of various types of Disasters
CONTENTS:	**UNIT I: Basic Concepts of Disaster Management** Disaster - definitions, concept and perceptions; Different types of disasters; Various initiatives at National and State level; Kyoto Framework of disaster mitigation and management; Disaster Management Policy - National and States; Disaster Management Act - National and States. **UNIT II: Disaster Management Mechanisms** Disaster management mechanisms - national, state and district levels; Select global practices; disaster and development; Physical planning and disaster management plans; Various role players in disaster management - NGOs / CBOs and Armed Forces; Community Based Disaster Preparedness (CBDP). **UNIT III: Disaster Risk Mitigation** Natural Disasters - physical phenomenon, causes and consequences mitigation and management practices - cyclones, floods, earthquakes, landslides etc.; Causes and risk mitigation strategies at the master plan for industrial, chemical and biological disasters; Land use planning, building bye laws and disaster safe construction practices for different types of disasters. **UNIT IV: (i) Disaster Preparedness** Forecasting and early warning systems for various types of disasters; communication and information technology in disaster management; Disaster education and awareness; Documentation and case studies on natural disasters. Urbanization, land requirements, social and affordability issues of land use, climate change and its implications in disaster mitigation. **(ii) Post Disaster Management and Cross Cutting Issues** Post disaster management; Rehabilitation and reconstruction of disaster affected areas; Urban disaster mitigation; Natural resource management for disaster safe habitation; Relationship between disaster and environment; safe hill area development guidelines and coastal zone regulations for safe habitation; Human settlement planning for consequence mitigation of global warming and climate change through
Method:	Lecture based study
Skills:	to comprehend the type of disasters, steps needed for its preparedness
OUTCOME:	Students will be able to comprehend the type of disasters, steps needed for its preparedness, understand the role of Government and voluntary organizations and their hierarchy and inter linkages.

PLC 704 SMART DEVELOPMENT CONTACT HRS/WK =02 (L=2,S=0, W=0) REDITS =02	
EMPHASIS:	Identify smart development as a prime concern to todays' time
CONTENTS:	UNIT I: •Introduction to '"City Planning" Understanding Smart Cities Dimensions of Smart Cities UNIT II •Global Experience of Smart Cities Smart Cities –Global Standards and Performance Benchmarks, Practice Codes UNIT III •India "100 Smart Cities" Policy and Mission Smart City Planning and Development UNIT IV Financing Smart Cities Development Governance of Smart Cities
Method:	Lecture based study
Skills:	Define and understand smart development as a concept and initiative taken under it
OUTCOME:	Define and understand smart development as a concept and initiative taken under it

PLC 705 URBAN ADMINISTRATION CONTACT HRS/WK =02 (L=2,S=0, W=0) CREDITS =02	
EMPHASIS:	Understanding bases of Administrative and Management tactics in Government and Private Organisations
CONTENTS:	UNIT I: Organization – types, concepts, theories, structure and functions- approaches to understanding ● organizations- organizational design development and change organization. Organization Vs. ● Institution- Institution building – factors and processes of institutional building. ● Public relations- concepts types methods and planning public relations people participation theories, methods and planning participation. ● Human resource planning and management- tasks jobs and work job analysis selection recruitment, induction and performance appraisal. UNIT II: Basic concepts of urban governance Historic evolution and development to date Agencies involved with Urban Development. Present organizations and agencies governing the urban development case studies of some state departments, urban development authorities and local bodies. UNIT III: Issues related to urban development for plan procession, plan implementation and enforcement, relating to governance aspects of the various institutions/organizations involved. UNIT VI:- (I) The Institutional frame and mechanism for urban governance as envisaged in the 74” CAA and their new role likely to be assigned to the existing planning and development agencies in various states. (II) Role of people’s participation planning process. Involvement of NGOs, other agencies. Case studies to be undertaken by the students to understand the important aspects of urban governance.
Method:	Lecture based study
Skills:	Understanding public management and organization system
OUTCOME:	Understanding bases of Administrative and Management tactics in Government and Private Organisations

PLC 706 GIS Theory and Application CONTACT HRS/WK =02 (L=2,S=0, W=0) CREDITS =02	
INTERNAL ASSESSMENT (TW/EXERCISES) = 50 **UNIVERSITY EXAMINATION (THEORY) = 50**	
EMPHASIS:	Understanding bases of Administrative and Management tactics in Government and Private Organisations
CONTENTS:	UNIT I: COORDINATE SYSTEM AND GEOCODING : Common coordinate system Cartesian polar, global, latitude, longitude , storing coordinate, prison, map projects, manipulation, curvilinear , transforming, analysis & modeling discrete geo referencing, street address, house numbering. UNIT II: VECTOR DATA STRUCTURE AND ALGORITHMS: Storage of complex spatial objects, storage of uses, simple algorithm for line intersection, polygons and polygon overlay operations, cut and fill proximity, corridor. RASTER DATA STRUCTURE AND ALGORITHMS: Raster storage, hierarchical data structure Quadtree algorithms and indexes. UNIT IV: DATA STRUCTURE AND ALGORITHMS FOR SURFACES AND TIME: Digital Elevation models TIN data structure spatial interpolation, 3D and temporal database 3D Data models derivatives statistics . DATABASES FOR GIS Concept UNIT III: ERROR MODELING & DATA UNCERTAINTY: Accuracy of partial databases managing errors, Fractals, Line generations. VISULISTAICS OF SPATIAL DATA- Visualization, color theory. DECISION MAKING IN GIS CONTEXT: Multiple criteria methods location Allocation on network , Spatial decision support system. UNIT IV SYSTEM IMPLEMENTATION : Implementation issues and implementation strategy. OTHER GIS ISSUES: GIS standards, legal issues, development of a Nation GIS Policy, knowledge based technology and the future of GIS.
Method:	Lecture based study
Skills:	Understanding public management and organization system
OUTCOME:	Understanding bases of Administrative and Management tactics in Government nd Private Organisations

PLC 707 ELECTIVES-VI	CONTACT HRS/WK= 05 (L=0,S=0, W=6)	CREDITS =03
FOCUS :	To help students explore their aptitudes and in developing skills in any related field	
CONTENTS :	A number of subjects shall be offered depending on faculty availability. Students may register for any one of the offered courses for the semester. Courses that may be offered from time to time : 1. Tourism Planning 2. Heritage Conservation & Preservation 3. Traffic & Transportation 4. Planning for Informal Sectors 5. Development of water bodies & natural resources 6. Wastewater management 7. Urban Infrastructure 8. Campus Planning 9. Affordable and Cost Effective Housing 10. Census Information Analysis	
OUTCOME:	Students will be able to broaden their skills and interest in their fields of liking, will be able to enhance their core/domain knowledge through direct/indirect reflection and will be engaged in insightful learning experiences.	

B PLAN IV: SEMESTER VIII

PLC 801 THESIS	CONTACT HRS/WK = 23 (L=0,S=17, W=6)	CREDITS = 20

EMPHASIS:	**Thesis** project essentially culminates in a spatial planning solution in addition to well researched social, economic and strategic inputs. The student is required to present the thesis project orally, graphically and through a well written report.
CONTENTS:	**Unit 1:- Development of Methodology** Clear goals and objectives along with scope of each objective be outlined before establishing the need for conducting a research study; Substantive limitations of the research work to be stated. **Literature Review and Case studies** Previous published work on the subject area to be critically examined for finding out existing thought processes of other authors and trends. **Unit 2:- Primary(Field Surveys)/Secondary Data Collection** Depending on the research topic, field surveys have to be designed and field work has to be done after conducting appropriate sample surveys. **Unit 3:- Synthesis of Data and Information and Findings** Field data and information and literature search findings are synthesized to make final arguments and identification of planning issues. **Unit 4:- Proposals and Recommendations** Final specific planning proposals and recommendations to be made at various geographical levels. Proposals should directly emanate from analysis and studies. Thesis should contain a list of references/appropriate bibliography as per international standards.
OUTCOME:	Students will develop skills of designing and providing sustainable solutions to urban problems through a thorough understanding of procedural mechanisms(existing or newly evolved as a result of the proposal.).

PLC 802 PROFESSIONAL PRACTICE CONTACT HOURS/WEEK =02 (L=2,S=0, W=0) CREDITS =02	
EMPHASIS:	Understanding Professional Role and Responsibilities of a Planner
CONTENTS:	**UNIT I: Role of Planner :** Planner's input as professional at various levels and organizations, his role in decision making processes, relevant issues(Generalists vs. specialists, professionals vs. technocrats, planner as decision maker vs. advisor to decision maker) relationship with client, developers, institutions and contractors; Relationship with other experts as a Team Leader such as engineers, architects, sociologists, economist, lawyers, etc. for specialized studies related to planning. **UNIT II: Organization, Scope and Scale of Charges** Scope of services for different projects like master plan for urban area, zonal district plan, sector/neighborhood, layout for group housing schemes, commercial centers, industrial estates, etc.; Consultancy agreements and safeguards; Fees and scales of professional charges. **UNIT III: Ethics** Canons of ethics; Ethics of virtue; Ethics of duty; Ethics of responsibility; Work ethics; Professional ethics; Ethics in planning profession, research and education. **UNIT IV: Office Management**
OUTCOME:	Students will understand the importance and responsibility involved in planning practices; be a facilitator in designing sustainable solutions to urban issues and problems.

PLC 803 ELECTIVES-VII CONTACT HRS/WK= 05 (L=0,S=0, W=5) CREDITS =03	
FOCUS :	To help students in exploring their aptitudes and in developing skills in any related field or in the field of their own interest.
CONTENTS :	A number of subjects shall be offered depending on faculty availability. Students may register for any one of the offered courses for the semester. Courses that may be offered from time to time : 1. Tourism Planning 2. Heritage Conservation & Preservation 3. Traffic & Transportation 4. Planning for Informal Sectors 5. Development of water bodies & natural resources 6. Wastewater management 7. Urban Infrastructure 8. Campus Planning 9. Affordable and Cost Effective Housing 10. Census Information Analysis
OUTCOME:	Students will be able to broaden their skills and interest in their fields of liking, will be able to enhance their core/domain knowledge through direct/indirect reflection and will be engaged in insightful learning experiences.