Annexure 1: Format of *Curriculum*

Module code	Module Title	Credits		Lecture hrs. per week	Project work/ Assignment hrs. per week	Evaluation	
		C	E			CA%	WE%
TP5101	Environmental Assessment	02		2		40	60
TP5105	Planning Theory and Strategic Intervention	02		2		50	50
TP5109	Planning Techniques and Data Analytics	02			4	100	
TP5110	Environmental Law, Governance and Planning	02		2		40	60
TP5111	Planning for Climate Change	02		2		100	
TP5112	Natural Resource Planning and Management	02		2		50	50
Total for Semester 1		12					
TP5202	Environmental Management Systems	02			4	100	
TP5210	Environmental Economics	02		2		40	60
TP5211	Eco-Sensitive Planning and Design	02			04	100	
TP5212	Resilient Infrastructure Systems	02		2		40	60
TP5213	Environmental Planning Studio I (Local Scale)	06			12	100	
Total for Semester 2		14					
TP6304	International Studies		02		04	100	
TP6305	Project Planning & Management		02	2		40	60
TP6306	Environmental Informatics		02		04	100	
TP6307	Conservation in Planning		02	2		100	
TP6308	Waste Management Systems		02	2		100	
TP6309	Landscape Planning and Design		02		04	100	
TP6310	Research Methods for Environmental Planners	02			04	100	
TP6311	Environmental Planning Studio II (Regional Scale)	06			12	100	
TP6312	Environmental Modelling	02			04	100	
TP6313	Cities, Regions, and Economic Development	02		2		40	60
Total for Semester 3		12	12				
TP6402	Dissertation	20			40	100	
Total for Semester 4		20					
Total for the Programme		58	12				

Recommended by the Senate Curriculum and Evaluation Committee held on 13th December, 2023

Annexure 2: Format for *Syllabus*

Semester 01

<table>
<tr><td>Module Code</td><td>TP5101</td><td>Module Title</td><td colspan="4">Environmental Assessment</td></tr>
<tr><td>Credits</td><td>02</td><td rowspan="2">Hours/Week</td><td>Lectures</td><td>2</td><td rowspan="2">Pre/Co - requisites</td><td rowspan="2"></td></tr>
<tr><td>C/E</td><td>Compulsory</td><td>Lab/Assignments</td><td></td></tr>
<tr><td colspan="7">LEARNING OUTCOMES

The students should be able to,

1. Identify the purpose and role of EA in the decision-making process and understand its technical and social/political limitations.
2. Analyze and predict ecological systems, their functions, and interactions with built & socio-economic environments.
3. Review and preparation of assessment reports (EIA and SEA)</td></tr>
<tr><td colspan="7">OUTLINE SYLLABUS

Environmental Assessment & and prediction techniques related to,

• Air environment
• Water environment
• Soil
• Biodiversity
• Socio-Economic environment
• Cultural environment
• Noise &vibration
• Spatial & Temporal Analysis
• Environmental Risk Analysis
• Ecological Systems Analysis
• Environmental Assessment Process
• EIA and SEA
• Strategic assessment
• Assessment tools
• Legal Aspect</td></tr>
</table>

Module Code	TP5105	Module Title	Planning Theory and Strategic Intervention			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Explain planning theories and concepts related to the origin, growth, and form of human settlements and their planning.
2. Compose knowledge on the complex socio-cultural and political forces integrated with decision-making processes.
3. Exemplify the principles of strategic planning.

OUTLINE SYLLABUS

- Planning History
  - Early Planning Traditions and Historical Foundations
  - The Rise of Urban Planning in the 19th and Early 20th Centuries
  - Planning and the Garden City Movement
  - Post-World War II Planning and the Suburbanization Era
  - The Environmental Movement and Its Influence on Planning
  - The Shift Towards Sustainable and Eco-friendly Planning
  - Social and Equity Movements in Planning History
- The concept of strategic planning
- Normative & contemporary social, economic and geographic theories
- Concepts of human settlement forms and their planning
- Theoretical interpretations of the problems and issues in human settlements and environment
- Planning processes and related theories.

Module Code	TP5109	Module Title	Planning Techniques and Data Analytics			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	04		

LEARNING OUTCOMES

The students should be able to,

1. Explain the fundamental concepts and principles of planning techniques and data analytics.
2. Apply planning techniques and data analytics skills to solve real-world problems and make informed decisions.
3. Evaluate and select appropriate planning techniques and data analytics methods for specific applications and scenarios.

OUTLINE SYLLABUS

Practical / Lab Work with data analysis and programming:

- SWOT analysis
- Delphi Method
- Analytic Hierarchy Process
- Costs Benefits analysis
- Network analysis
- Critical path method
- Causal Loop Analysis
- Scenario Analysis
- Gaming
- Decision Tree Method
- GIS-based analysis (Sieve Map technique, Potential Surface technique, Network Analysis)
- Data analysis using programming
- Data communication and visualization
-

Module Code	TP5110	Module Title	Environmental Law, Governance and Planning			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Describe planning, development, property, and environmental-related statutes and their implications on environmental planning.
2. Construct a comprehensive knowledge/discourse in planning and environment related statutes.
3. Apply governance practices and their implications on environmental planning.

OUTLINE SYLLABUS

- Environmental Planning Laws & their limitations
- Planning as a process and the limitations of existing development controls
- The principles of judicial review of administrative actions
- Impact of planning decisions
- Principles of good urban governance and planning
- Governance index
- Planning local and state government systems
- Governance models for urban innovation in different contexts and Governance dynamics
- Collaboration among public, political and other stakeholders
- Governance Models for Urban Innovation
- Urban Management Approaches and Tools
- Urban governance and decision-making structures.
- Tools and techniques for urban management (e.g., land use planning, zoning regulations).
- Integrating environmental considerations into urban planning and management.

Module Code	TP5111	Module Title	Planning for Climate Change			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Conceptualize the implications of emerging global and national issues.
2. Develop responsive adaptation and mitigation strategies for climate change, disaster, and other risk situations in the planning of human settlements.
3. Understand the international treaties and agreements related to climate change

OUTLINE SYLLABUS

- Climate change and its influence on urban and rural ecosystems, land uses, transportation, water use agriculture systems, etc.
- Risk and uncertainties in decision-making
- Risk assessment and Risk management
- Policy responses to climate change and other disasters
- Resilient cities and ecosystems
- Spatial planning and disaster risk reduction strategies
- Adaptation and mitigation tools
- International treaties and agreements on climate change

Module Code	TP5112	Module Title	Natural Resource Planning and Management			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Describe the principles and concepts of natural resources management and their relevance to environmental planning.
2. Analyze the environmental, economic, and social impacts of natural resource use and management.
3. Design and evaluate sustainable natural resource management plans and policies tailored to specific environmental planning contexts.

OUTLINE SYLLABUS

- Introduction to Natural Resources Management in Environmental Planning
- Principles of Natural Resources Management
- Ecosystem Services and Resource Assessment
- Forest Resource Management
- Water resource management
- Wildlife and Biodiversity Management
- Fisheries and Aquatic Resource Management
- Land Use Planning and Resource Allocation
- Case Studies in Sustainable Resource Management

Semester 02

Module Code	TP5202	Module Title	Environmental Management Systems			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	04		

LEARNING OUTCOMES

The students should be able to,

1. Recognize the environmental responsibilities of an organization in a quantifiable manner.
2. Conduct a Technical Audit, including energy, noise, water, and waste, which is the precursor to establishing an Environmental Policy, if required, a formal Environmental Management System (EMS)

OUTLINE SYLLABUS

- Environmental management principles
- Guiding principles for environmental management
    - Developing guidelines
- Environmental standards and legislation
    - Understanding and implementing of ISO 14001:2004
- Environmental management tools and practice.
    - Life Cycle Analysis
    - Process Analysis and Tests
    - Environmental auditing
    - Energy auditing, Green Building assessment
- Practical experience of designing environmental management system
    - Industrial visit
    - Case study

Module Code	TP5210	Module Title	Environmental Economics			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Explain the implications of economic theory related to the environment and its activities.
2. Critically review the conflicts between environment and market forces
3. Assess the local, regional, and national issues arising due to the market forces and environmental integrity.

Apply valuation techniques in the decision-making process

OUTLINE SYLLABUS

- The role of markets in Natural resource management
- Spatial allocation of natural resources
- Market Failure and Policy Instruments: Standards, Taxes and Subsidies
- Policy Instrument Choice: Heterogeneity, Uncertainty
- Economics of externalities and pollution abatement
- Environmental valuation techniques and cost and benefit analysis
- Global Pollutants and International Environmental Agreements
- Application of natural resource management
- Assessing Local, Regional, and National environmental issues
- Exploring emerging environmental challenges

Module Code	TP5211	Module Title	Eco-Sensitive Planning and Design			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	04		

LEARNING OUTCOMES

The students should be able to,

1. Explain innovative ecological discourses.
2. Design an ecologically sensitive development plan.
3. Apply sustainable principles in eco-sensitive planning practices at the local level

OUTLINE SYLLABUS

- Integration of the structure, functions, and change of ecosystems with a land use planning framework.
- Theory and applications connecting sustainability sciences and practice to land use transformation.
- Environmentally sustainable discourses.
- Planning and design green infrastructure
- Concept of Green Cities, Sustainable Cities, Eco-Cities, Smart Cities
- The concepts of environmental footprint, industrial ecology
- Environment-sensitive practices in spatial planning
- Case studies of eco-sensitive planning practices in the global context
- Analyzing successful community-based environmental planning case studies.
- Group discussions on best practices and lessons learned.
- Identifying innovative approaches in community planning.

Module Code	TP5212	Module Title	Resilient Infrastructure Systems			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Explain the fundamental concepts and principles of smart, green and sustainable infrastructure systems.
2. Design and evaluate sustainable infrastructure solutions in interdisciplinary teams to address complex infrastructure challenges.

OUTLINE SYLLABUS

Theory Session and Discussion

- Introduction to smart, sustainable, and resilient infrastructure systems
- Principles of smart infrastructure
- Sustainable infrastructure development
- Resilient infrastructure systems
- Case Studies and Best Practices
- Policies, statutes and guidelines

Practical / Lab Work

- Street networks and urban street design
- Transport network planning and design
- Sustainable urban mobility plan
- Urban sanitation systems planning and design.
- SMART environment monitoring infrastructure planning and design

Module Code	TP5213	Module Title	Environmental Planning Studio I (Local Scale)			
Credits	06	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	12		

LEARNING OUTCOMES

The students should be able to,

1. Explain the local level planning process and the project formulation and implementation.
2. Apply skills to use effective planning and environmental design tools in local-level planning
3. Design planning solutions at the local scale (boundary delineation, site selection, and environmental assessment, planning, and obtaining statutory approval of the plan).

OUTLINE SYLLABUS

- Principles and concepts of local area planning& planning process.
- Environmental, social, technical, financial, institutional & risk assessments
- Inventory of physical, biological, socio-economic, and cultural attributes of local levLocation-Based Services (LBS) and its applications
- Data analysis and visualization
- Goals & vision formulation, spatial strategy formulation, strategy evaluation, public participation, action project identification
- Project implementation, Monitoring, Feedback, and Project Financing

Semester 03

Module Code	TP6304	Module Title	International Studies			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Elective		Lab/Assignments	04		

LEARNING OUTCOMES

The students should be able to,

1. Explain an understanding on different planning systems of the world.
2. Explain on emerging global and regional trends in environmental planning.
3. Critique on international trends in environmental planning and awareness on planning processes in neighborhood countries.

OUTLINE SYLLABUS

- Planning cases from the international context
- Issues, specificities, and appropriateness of planning interventions, and lessons drawn.
- Environmental planning-related issues with a few planning agencies from Asia and other parts of the world, including India, Singapore, Pakistan, and Malaysia.

Module Code	TP6305	Module Title	Project Planning & Management			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Elective		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Understand the project cycle
2. Examine the ways projects are conceived, planned, implemented, and evaluated.
3. Apply more flexible forms of financing and management methods and techniques to solve planning and management issues

OUTLINE SYLLABUS

- Concepts of project management
- Overview of issues involved in managing projects.
- Project financing - types, sources, criteria, and choice
- Project financing and monitoring procedures and tools
- Procurement
- Arbitration and Negotiation
- Leadership
- Marketing

Module Code	TP6306	Module Title	Environmental Informatics			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Elective		Lab/Assignments	4		

LEARNING OUTCOMES

1. Apply Geographic Information Science (GIS), Remote Sensing (RS) and Location-Based Services (LBS) techniques to acquire environmental data.
2. Utilize GIS, RS and LBS to analyze, interpret, and visualize a given phenomenon
3.

OUTLINE SYLLABUS

- Theory Session and Discussion
  - Fundamental Concepts and Theories of GIScience
  - Remote Sensing Fundamental
  - Overview of Location-Based Services and Its Relevance in Environmental Informatics
  - Global Navigation Satellite System (GNSS)
  - Smartphone positioning techniques
- Practical / Lab Work
  - Hands-on Application of Spatial Analysis with GIS Tools
  - Exploration of Advanced Remote Sensing Techniques for Environmental Data Acquisition
  - Practical Applications of GNSS Technology
  - Implementation and Evaluation of Smartphone Applications in Environmental Informatics.

Module Code	TP6307	Module Title	Conservation in Planning			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Elective		Lab/Assignments			

LEARNING OUTCOMES

1. Describe the principles and concepts of urban conservation in environmental planning.
2. Analyze urban conservation challenges and opportunities, including cultural heritage, green spaces, and biodiversity.
3. Apply urban conservation strategies and tools to enhance urban sustainability and livability.
4. Evaluate the impact of urban conservation initiatives on environmental and cultural aspects of urban areas.

OUTLINE SYLLABUS

- Biodiversity Conservation
- Cultural Heritage Preservation in Urban Areas
- Urban Green Spaces
- Community Engagement in Urban Conservation projects
- Regulatory Frameworks and Zoning for Conservation

Module Code	TP6308	Module Title	Waste Management Systems			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Elective		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Describe the principles and concepts of waste management.
2. Analyze waste generation, collection, treatment, and disposal methods, considering their environmental and social impacts.
3. Design sustainable waste management strategies and policies tailored to specific planning contexts (Urban, Municipal, Industrial, etc).

OUTLINE SYLLABUS

- Waste Generation and Composition
- Collection and Transportation of Waste
- Waste Treatment Technologies and infrastructure design
- Recycling and Resource Recovery
- Waste Policy and Regulations
- Waste Management Planning and Strategies
- Circular Economy and Waste Reduction
- Case Studies in Sustainable Waste Management
- Waste Management Plan Development
- National and international legislative frameworks

Smart Technologies and Sensors in Waste Collection Transportation etc.

Module Code	TP6309	Module Title	Landscape Planning and Design			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Elective		Lab/Assignments	04		

LEARNING OUTCOMES

The students should be able to,

1. Demonstrate knowledge relating to landscape planning.
2. Demonstrate an understanding of the complexities of landscape issues and problems.
3. Demonstrate insight into the philosophies, ideologies, and critical positions that underpin different approaches to landscape Planning

OUTLINE SYLLABUS

- Theories and concepts of landscape planning
- Landscape Ecology and Conservation
- Ecological Sampling Methods and Spatial analysis
- Planting Design and Management
- Landscape Design and Environmental Aesthetics Landscape Modeling
- Park and Recreational Planning
- Landscape Restoration

Module Code	TP6310	Module Title	Research Methods for Environmental Planners			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	04		

LEARNING OUTCOMES

The students should be able to,

1. Identify the components of a literature review process and critically analyze published research.
2. Formulate hypotheses for the research.
3. Apply quantitative, qualitative, and mixed methods approaches to research.
4. Apply appropriate strategies in managing ethical principles of research.
5. Apply appropriate sampling methods and survey instruments in research.
6. Develop comprehensive research proposals

OUTLINE SYLLABUS

- Introduction to basic concepts of research and the research process
- Research ethics and integrity
- Hypothesis development
- Literature review
- Qualitative Research Methods
- Quantitative Research Methods and Statistics
- Mixed Methods Research
- Data collection instruments and sampling
- Reporting Results of Data Analysis

Module Code	TP6311	Module Title	Environmental Planning Studio II (Regional Scale)			
Credits	06	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	12		

LEARNING OUTCOMES

The students should be able to,

1. Explain the role of spatial planning at the regional scale to promote environment conservation, social benefits, and economic development.
2. Design environmental policies at a broader policy framing level with a special concern on 'environmental and spatial systems and statutory requirements.
3. Produce innovative thinking toward planning issues at a broader policy-framing level.

OUTLINE SYLLABUS

- Planning as a process
- Precedence studies
- Existing planning legislations and legal frameworks
- Delineation of an environmental planning region based on the National Policies and plans.
- Situation analysis - Predictions, modeling, scenario building, risk analysis, tradeoff analysis
- Problem framing and prioritization.
- Spatial visioning
- Spatial Strategy formulation
- Frame the sustainable spatial strategy.
- Implementation mechanism & tools
- Stakeholder Engagement and Public Participation

Module Code	TP6312	Module Title	Environmental Modelling			
Credits	02	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	04		

LEARNING OUTCOMES

1. Understand the fundamental principles and concepts of environmental modeling.
2. Analyze and select appropriate environmental models for specific planning scenarios.
3. Collect, preprocess, and manage environmental data for modeling purposes.
4. Develop, implement, and validate environmental models using relevant software tools.
5. Interpret model outputs and assess their implications for environmental planning.
6. Use modeling results to support decision-making in environmental planning and policy development.
7. Evaluate the limitations and uncertainties associated with environmental modeling.
8. Communicate and present modeling results effectively to diverse stakeholders.

OUTLINE SYLLABUS

- Introduction to Environmental Modelling
- Model Selection and Development
- Data Collection and Preprocessing
- Spatial Environmental Modelling
- Temporal Environmental Modelling
- Environmental Model Calibration and Validation
- Model Application in Environmental Planning

Module Code	TP6313	Module Title	Cities, Regions, and Economic Development			
Credits	02	Hours/Week	Lectures	2	Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments			

LEARNING OUTCOMES

The students should be able to,

1. Explain a broader understating of the origin, growth and evolution of cities and regions responding to social, economic and political forces;
2. Explain wider knowledge on the socio-economic issues in cities and regions;
3. Apply knowledge on macro-economic development aspects for spatial planning.

OUTLINE SYLLABUS

- Theories and concepts of studying cities and regions
- Urban development under Regional planning, Local Planning, Community planning
- Sociological analysis of socio-economic issues in cities and regions
- Population trends
- Economic development policies and strategies for settlements
- Public and Private sector in economic development
- Regional economic policies evaluation study as part and input to the Environmental Region Planning Project.

Semester 04

Module Code	TP6402	Module Title	Dissertation			
Credits	20	Hours/Week	Lectures		Pre/Co - requisites	
C/E	Compulsory		Lab/Assignments	40		

LEARNING OUTCOMES

The students should be able to,

1. Define a Planning related research problem situation and formulate a focused research question and carry out a scientific investigation using selected research method, tools and techniques.
2. Develop a dissertation under the supervision of a senior academic.

OUTLINE SYLLABUS

Develop a research thesis under the supervision of a senior academic.

Annexure 3: Format of Existing Curriculum

Module code	Module Title	Credits		Lecture hrs. per week	Project work/ Assignment hrs. per week	Evaluation	
		C	E			CA%	WE%
TP5101	Environmental Assessment	02				30 - 40	70 - 60
TP5102	Environmental Economics	02				30 - 40	70 - 60
TP5103	Environmental Planning Techniques	02				100	
TP5104	Governance, Planning and Environmental Law	02				30 - 40	70 - 60
TP5105	Planning Theory and Strategic Intervention	02				30 - 40	70 - 60
TP5106	Environmental Planning Studio I (Regional Scale)	06				100	
TP5107	Planning for climate change, risk and uncertainty		02			30 - 40	70 - 60
TP5108	Cities, Regions and Economic Development		02			30 - 40	70 - 60
Total for Semester 1		12					
TP5201	Infrastructure Planning	02				30 - 40	70 - 60
TP5202	Environmental Management Systems	02				100	
TP5203	Eco Sensitive Planning	02				100	
TP5204	Project Financing & Management	02				30 - 40	70 - 60
TP5205	Environmental Planning Studio II (Local Scale)	06				100	
TP5206	Project Study	06				100	
TP5207	Advanced GIS & RS for Environmental Planners		2			100	
TP5208	Demography, Society and Space		2			30 - 40	70 - 60
TP5209	Heritage in Planning		2			100	
Total for Semester 2		14	04				
TP6301	Research Methods & Statistics for Environmental Planners	02				100	
TP6302	Water Resources Planning & Management	02				30 - 40	70 - 60
TP6303	Landscape Planning		02			100	
TP6304	International Studies		02			100	
Total for Semester 3		16	06				
TP6401	Dissertation	15				100	
Total for Semester 4		15					
Total for the Programme		57	10				