

MASTERS COURSE IN PLANNING (Specialization in ENVIRONMENTAL PLANNING)

Mission Statement

The curriculum of Master of Planning (with specialization in Environmental Planning) is specially designed to train the students in methods of scientific analysis and evaluation of the various factors of development and its effect on the environment. It recognizes that environmental considerations at the planning stage may prevent much environmental degradation later on. Land use planning, to be meaningful, has to take cognizance of advanced techniques and tools that are now available for predicting environmental impacts. The students are exposed to different facets of environmental planning, design, development control and impact assessment methods.

This is one of the few courses in the country, which acquaints the students with the practical realities of living environment, techniques of measurements of environmental quality, including the laboratory techniques of measuring levels of air pollution, noise and water pollution learnt under the experts from Central Pollution Control Board and Department of Environment, Government of NCT, Delhi. The theoretical aspects of various facets of Environmental Planning, Environmental Design, Environmental Impact Assessment, and Environmental Economics are imparted in a span of three semesters. Finally the course enables the students to incorporate environmental considerations in spatial planning exercises backed by theoretical understanding, tools and techniques and exposure to practical cases

Course Structure

The theory courses are developed to acquaint the student with the evolution of the subject, relevance and application as per latest development in the world and also in India. Assignment are in the form of case studies, seminars and test. The core subjects are as follows:

1. Theory of Environmental Planning
2. Theory of Environmental Design
3. Environmental Impact Assessment
4. Environmental Monitoring and Assessment
5. Environmental Protection and Management
6. Environmental Economics and Environmental Auditing
7. Environmental Legislation Policies and Practices

The studio exercises are formulated to address the various facets of environmental planning-impact assessment studies, eco-cities development, environmental improvement etc. The exercises lead to an appreciation of an understanding of environmental issues at various

scales – regional, urban and site level. Also the need to understand the scope of intervention at a particular scale and tools available, while having an understanding at all scales. The exercises therefore range from regional environment plan, formulation of urban environment plan or addressing specific environmentally sensitive issues.

SPECIALIZATION IN ENVIRONMENTAL PLANNING

SECOND SEMESTER

EP-C-1 THEORY OF ENVIRONMENTAL PLANNING

- Concepts of Environmental Planning, History of Environmental Planning, Development of habitat patterns, settlement structure and form in response to environmental challenges.
- Concepts of Ecology and Ecosystem
- Resource analysis for various ecosystems and development imperatives (land, geology, soil, climate, water, vegetation) characteristics, exploitation, causative factors for degradation, analytical techniques.
- Urban Ecosystem.
- Environmental Zones (Hill, coastal, arid, characteristics, resources, settlements pattern, problems and potentials, regulating mechanisms for development.
- Environmental Policies and initiatives including policies, strategies, protocols, treaties and agreements

EP-C-2 ENVIRONMENTAL DESIGN

- Design as a determinant of Environmental quality
- Evolution of Environmental design, theories and practice of design
- Criteria of Urban Environmental design issues-pedestrian-vehicular conflict, City Centre Environment, Housing areas, dereliction, environmental upgradation programmes
- Urban climatology, effects of thermal pollution, factors causing heat sink effects, direct radiation, climatic effects on Urban areas, control techniques, Climate Change and City Planning.
- Urban acoustics:- source of noise, methods of control, design techniques.
- Landscape as an environmental asset, techniques of landscape assessment at different levels, use of landscape design for environmental improvement.
- Built environment aesthetics of ensemble of buildings, techniques of study of building condition, conservation aspects of built-up areas.
- Environmental approaches to design and planning of rural settlements, use of alternate technology in design of human settlements.
- Application of Energy code, Clean Development Mechanism.

EP-C-3 ENVIRONMENTAL MONITORING AND ASSESSMENT (Theory)

- Air Pollution-sources, causes/pollutants and their effects, emission sources, vehicular emissions, techniques of monitoring of emissions, emission standards, and ambient air quality. Concepts of relevant meteorological parameters, and interpolation of data, wind system measurement, turbulence; mixing height, plume use, dispersion and dispersion models.
- Water Pollution – sources, water quality tests, minimum standards of disposal (for different uses), performance criteria.
- Noise Pollution- sources, techniques of measurement, noise level standards, noise levels.

- Land Pollution -sources, soil erodibility tests, minimum standards of disposal (minimum standards for different uses), performance criteria.
- Interpretation of analytical trends of various parameters of quality of environment as above.

EP-C-4 ENVIRONMENTAL MONITORING AND ASSESSMENT (Laboratory)

Air Quality Parameters

Familiarisation with relevant instruments/equipments and procedures (High Volume Sampler, Handy Sampler, Noise Meter, Spectrophotometer etc)

TSPM, RSPM, SO₂, NO_x, Stack Monitoring, Noise Level Measurements etc.

Water Quality Parameters

Familiarisation with relevant instruments/equipments and procedures (Flame Photometer, Water Testing Kit, Digital pH meter, BOD Incubator, Dissolved Oxygen Meter)

Alkalinity, Amonical Nitrogen, BOD, COD, DO, Coliform, Fluoride, Nitrate-Nitrogen, pH, SAR, etc.

Soil Quality Parameters

Familiarisation with relevant instruments/equipments and procedures (Soil Testing Kit)

pH, EC, Soil Moisture, Phosphate, Potassium, Sodium, etc.

Weather Parameters

Familiarisation with relevant instruments/equipments and procedures (Electronic Weather Station)

Temperature, Relative Humidity, Rainfall, Wind Direction and Speed, etc.

EP-C-5 ENVIRONMENTAL IMPACT ASSESSMENT

- Role of EIA in the Planning and decision making process.
- Definition and need, evolution and objectives, tasks and scope.
- Methods of EIA; advantages and limitations
- Assessment of impacts on resources (Including air, water, flora and fauna)
- Assessment of impacts on Land use.
- Assessment of social and health impacts.
- Public Participation in EIA; definition and concepts, objectives, techniques, advantages and limitation, PRA techniques.

EP.C-6: PLANNING AND DESIGN STUDIO

Planning and Design Studio - Exercises pertaining to:

- Environmental Status
- Environmental Impact Assessment
- Environmental Improvement/ Conservation /Safe and Healthy City

EP.C-7: GIS LABORATORY TRAINING

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THIRD SEMESTER

EP. C-8: ENVIRONMENTAL ECONOMICS AND ENVIRONMENTAL AUDITING

- Uses of monetary valuation – Cost Benefit Analysis, National Resource Accounting, Pricing, Non-use Value, Techniques of monetary evaluation / valuation methodologies
- Economic approaches of measuring sustainable development; measuring wealth, modifying GNP, savings, technological Change, Social Capital, Property right, creating global markets.
- Environmental Certification, Performance evaluation, Environmental Auditing, Eco-labeling, ISO.

EP. C-9: ENVIRONMENTAL PROTECTION AND MANAGEMENT

(a) Environmental Protection Techniques

- Air pollution mitigation and abatement
- Water pollution mitigation and abatement
- Noise attenuation
- EPA Guidelines
- Role of Government and Non-Government Organizations in Environmental Protection
- Best practices in Environmental Protection and Conservation
- International Co-operation for Environmental Protection.

(b) Environmental Management

- Resource Management: Including management of land, water bodies and water channels, forests and wildlife, minerals.
- Management of Urban Areas.
- Management of sensitive areas – hills, coasts, arid, wetlands etc. (including participatory approaches)
- Management of Watersheds

(c) Appropriate Technologies and Applications

- Techniques and case studies related to water harvesting, water treatment, recycling, waste disposal, waste minimization, and their implications.
- Low cost and cleaner technologies.
- Environmental Management of Indian Metropolis.
- Models of Collaboration Environmental Planning.

Technologies related to alternate energy- Solar, biomass, biogas, hydro, wind and their usefulness in settlements.

EP. C-10: ENVIRONMENTAL LEGISLATION, EVOLUTION AND PRACTICES

- EP Act 1986
- Air (Prevention and Control of pollution) Act
- Water (Prevention and Control of pollution) Act
- Mines and Mineral Act
- Factories Act
- Pesticides Act
- Indian Forest Act
- Wildlife Act
- Ancient Monuments and Archaeological Sites and Remains Act
- Hazardous Waste Management and Handling Rules / Biomedical Rules / Solid Waste Management Rules
- Environment Tribunal Act
- Climate change Protocols and Conventions
- MOEF Guidelines and Notifications
- Appellate Authority Act
- Other related Notifications

EP. C-11: ADVANCED EIA TECHNIQUES

Assessment of development projects (including roads, industries, improvement programmes) Case studies. Risk Assessment / Vulnerability Assessment, Strategic EA / Sustainability Appraisal, Carrying Capacity / Environmental Thresholds.

PL-C-6: PLANNING LEGISLATION

A. Planning Legislation –General

Concept of Law: Source of law (i.e. custom, legislation and precedent), meaning of terms of law, legislation, ordinance, Bill, Act, Regulations and Bye-laws.

Significance of law and its relationship to Urban planning benefit of statutory provisions- eminent domain & police powers.

Indian Constitution: Concept and contents, provisions, regarding property rights, Legislative competence of state and central Government to enact town planning legislation.

Evolution of Planning legislation. An over view of legal tools connected with Urban Planning and Development, Town and Country Planning Act, Improvement Trusts Act, Urban Planning and Development Authorities Act -objectives, content, procedures for preparation and implementation of regional plans, Master Plans and Town Planning schemes.

B. Planning Legislation –Acts and Amendments

Concept of Arbitration; Betterment levy; development charges and public participation in Statutory planning process; Concepts of Structure Plan; local plan/and action plan under the English law.

Environment Protection Act 1986.

Land Acquisition Act 1884 - Basic concept, procedure for compulsory acquisition of property and determination of compensation.

Urban land (Ceiling and Regulation) ACL 1976 – objectives, contents and planning implications.

Significance of Land Development Control – objectives, contents and legal tools, critical evolution of zoning, sub-division regulations, building regulations and bye-laws, Development Code, Zoning law and law relating to periphery control.

73th and 74th Constitutional Amendment Act, 1992.

EP.C-12: PLANNING AND DESIGN STUDIO

Planning and Design Studio - Exercises pertaining to: A Settlements / Region

- Management Plan
- Conservation Plan

EP.C-13: GIS LABORATORY TRAINING

FOURTH SEMESTER

EP.C-14: FORMULATION, FINANCING AND MANAGEMENT OF DEVELOPMENT PROJECTS.

- The role of project formulation and appraisal in the Planning process.
- Methodology for project identification and formulation: Preparation of Preliminary studies, Feasibility Reports and Detailed Project Reports. Appraisal of Project, Monitoring of Projects.
- Reports: Review of project appraisal techniques adopted by financing agencies.
- Financial cost-benefit analysis: cash flow techniques, Net present value, internal rate of return. Benefit-cost ratio, etc., Exercises and case studies.
- Social cost-benefit analysis: Trade off between efficiency and equity goals in project appraisal, measurement of direct and indirect costs and benefits in different sectors of urban and rural development, Case studies.
- Risk and uncertainty in the project environment; sensitivity and profitability analysis in the Indian context.
- Emerging trends in the decision making process with respect to project appraisal and resource allocation at various levels of government.
- Logical framework analysis

EP.C-15: SEMINAR ON EMERGING ENVIRONMENTAL CONCEPTS

- Environmental Information Systems and Models
- Sustainable Settlements
- Ecological Footprints
- Environmental Security
- Environmental Disaster
- Ecotourism
- Urban Ecology
- Energy Planning in Urban Settlements.
- Any others

EP.C-16: PLANNING AND DESIGN STUDIO

- Thesis

**MASTERS COURSE IN ENVIRONMENTAL PLANNING:
Subjects, Teaching Hours and Evaluation**

Course	Subjects	Teaching Hrs / week	Marks		
			Internal	External	Total
SECOND SEMESTER					
EPC/PLC	Theory Courses				
EP.C-1	Theory of Environmental Planning	3	50	50	100
EP.C-2	Environmental Design	3	50	50	100
EP.C-3	Environmental Monitoring and Assessment (theory)	3	50	50	100
EP.C-4	Environmental Monitoring Laboratory	3	100	-	100
EP.C-5	Environmental Impact Assessment	3	100	-	100
	Sub Total	15	350	150	500
	Planning and Design Studio Assignments				
EP.C-6	Planning and Design Studio	12	200	200	400
EP.C-7	GIS Laboratory Training	3	100	-	100
	Sub Total	15	300	200	500
	Total	30	500	500	1000
THIRD SEMESTER					
EPC	Theory Courses				
EP.C-8	Environmental Economics and Environmental Auditing	3	50	50	100
EP.C-9	Environmental Protection and Management	3	50	50	100
EP.C-10	Environmental Legislation	3	50	50	100
EP.C-11	Advanced EIA Technologies	3	50	50	100
PL.C-6	Planning Legislation	3	50	50	100
	Sub Total	15	250	250	500
	Planning and Design Studio Assignments				
EP.C-12	Development Plan (Management / Conservation) for a Settlement / Region	12	200	200	400
EP. C-13	GIS Laboratory Applications	3	100	-	100
	Sub Total	15	300	200	500
	Total	30	500	500	1000

FOURTH SEMESTER					
EPC	Theory Courses				
EP.C-14	Formulation, financing and Management of Environmental Projects	3	50	50	100
EP.C-15	Seminar on emerging Environmental Concepts	3	100	-	100
	Sub Total	6	150	50	200
Planning and Design Studio Assignments					
EP.C-16	Thesis	24	400	400	800
	Sub Total	24	400	400	800
	Total	30	500	500	1000