					Maxim Theory	num Marks Block		Practic	al Black		Contac	t Hours p	er week			
S. No	. Course Code	Category Code	Course Name	Cont Minor Evaluation I	inuous Evalu	nation	Major	Continuo S Valuatio Lab Work & Sessional	Major Evaluation	Total Marks	L	Т	P	Total Credits	Mode of Learning	Mode of Exam
7.	67241106	DLC	Seminar- GIS	-	-	-	-	70	30	100	-	-	4	2	Experientia	SO

## **Geo-Informatics Laboratory Training**

- i) The laboratory training will be conducted in accordance with the studio exercise. Introduction to Geo-informatics, introduction to Remote Sensing Aerial and Satellite; introduction to GIS, Spatial data and Attribute data; Satellite images as input to GIS; Collection and presentation of baseline information.
- ii) The second exercise is a short and intensive exercise of one-month duration. It pertains to topical issues i.e. property tax reforms, informal sector, development of railway land, etc. The study is based on primary surveys and students are expected to analyze the information and arrive at recommendations.

#### **COURSE OUTCOME:**

This course	will enable the student to:
CO1	Understand advanced concepts of Geoinformatics with special emphasis on applications in Urban and Regional Planning.
CO2	Classify different data structures of Remote sensing, GIS & GPS.
CO3	Analyse urban situations and develop logical decision-making processes to address the complex overlays of conceptualisation, implementation and finance
CO4	Apply spatial and non-spatial data analysis techniques for the study area.

### DEPARTMENT OF ARCHITECTURE & PLANNING

## First Year Second Semester

1. City and Metropolitan Planning (Code - 67241201)

							Maxin	um Mar	ks Allo	otted				Con	tact H	lours				
						Theory	Block		M	OOCs	Practica	l Block		р	er we	ek		Mode		
s.	No.	Course Code	Category Code	Course Name	Conti	nuous Eval	uation	Major	Assignm		Continuous Evaluation		Total Marks				Total	of	Mode	uration ( Exam.
					Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation			Lab Work & Sessional			L	Т	P		ng		
	1.	67241201	DC	City and Metropolitan Planning	20	20	30	30	-	-	-	-	100	2	1	-	3	Face to Face	PP	3Hrs

### **Urban Growth and System of Cities**

Growth of cities scale, complexity and its impact on national development, cities as engines of growth, cities as ecosystems, resources in cities. City, fringe and the periphery - physical and functional linkages, peri-urban development.

# **Community and Settlements**

Social problems of slums and squatter's communities, urban and rural social transformation and their impact on social life, safety, security; Crimes in urban areas and their spatial planning implications, social structure and spatial planning; Role of socio-cultural aspects on growth patterns of city and neighborhood communities; Social planning and policy, and community participation; Marginalization and concepts of inclusive planning, and gender concerns in planning. Settlement Policy: National Commission on Urbanization, Rural Habitat Policy and experiences from developing countries regarding settlement structure, growth and spatial distribution.

## Metro and Mega Cities: Problems and Issues

Growth trends and processes, characteristics, problems, concepts and concerns of urban sustainability, issues related to diversity and unintended growth, economic, social and environmental sustainability, quality of life, inclusivity and equity, climate change, transit-oriented development, participatory planning. Inner city – issues and problems, approach to development. Human Settlement Planning, Urban Development Policies and programmes

Concepts, approaches, strategies and tools; Policies and programmes at various levels, impact on metro and mega city development.

# **Land and Real Estate Development**

Economic concepts of land, Land Pricing / valuation; Economic principles of land use; demand forecasting for land use: factors affecting land supply and demand; Land development methods, Supply Management, Demand side Management; Real estate markets, type of property development and its impact on supply and demand, method of development, environmental considerations.

# **Information System and Urban Reforms**

Spatial and Non - spatial information systems; Urban reforms and acts and policies.

#### **COURSE OUTCOME:**

The course City and metropolitan Planning will enable the student to:

CO1	Determine the principal dimensions of urban transformation (economic, social, cultural, physical, environmental, and spatial) and the key
	interdependencies among these facets of urban change
CO2	Elaborate the role of socio-cultural aspects on growth patterns of city and neighbourhood communities
CO3	Propose sustainable measures of Planning for metro and mega cities.
CO4	Explain land and real estate development impact on Urban land policies, land use and environment.
CO5	Discuss about various information systems and major reforms

# **First Year Second Semester**

2. Infrastructure and Transportation Planning (Code - 67241202)

Γ							Maxin	num Mar	ks Allo	tted				Con	tact H	ours				
						Theory	Block		M	OOCs	Practica	l Block		p	er we	ek		Mode		1
s	No.	Course Code	Category Code	Course Name	Conti	nuous Eval	uation	Major	Assignm		Continuous Evaluation		Total Marks				Total Credits	of	Mode	uration ( Exam.
					Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation		Exam	Lab Work & Sessional			L	Т	P		ng		
	2.	67241202	1 1)(	Infrastructure and Transportation Planning	20	20	30	30	-	-	-	-	100	2	1	-	3	Face to Face	PP	3Hrs

#### **Role of Infrastructure in Development**

Elements of Infrastructure (physical, social, utilities and services); Basic definitions, concepts, significance and importance; Data required for provision and planning of urban networks and services; Resource analysis, provision of infrastructure, and land requirements; Principles of resource distribution in space; Types, hierarchical distribution of facilities, Access to facilities, provision and location criteria, Norms and standards, etc.

### Planning and Management of Water, Sanitation and StormWater

Water – sources of water, treatment and storage, transportation and distribution, quality, networks, distribution losses, water harvesting, recycling and reuse, norms and standards of provision, institutional arrangements, planning provisions and management issues; Sanitation – points of generation, collection, treatment, disposal, norms and standards, grey water disposal, DEWATS, institutional arrangements, planning provisions and management issues.

Stormwater – rainfall data interpretation, points of water stagnation, system of natural drains, surface topography and soil characteristics, groundwater replenishment, storm water collection and disposal, norms and standards, institutional arrangements, planning provisions and management issues;

## Planning and Management of Municipal Wastes, Power and Fire

Municipal and other wastes – generation, typology, quantity, collection, storage, transportation, treatment, disposal, recycling and reuse, wealth from waste, norms and standards, institutional arrangements, planning provisions and management issues.

Power – Sources of power procurement, distribution networks, demand assessment, norms and standards, planning provisions and management issues. Fire – History of fire hazards, vulnerable locations, methods of firefighting, norms and standards, planning provisions and management issues.

# City Development and Transport Infrastructure Planning, Management and Design

Role of transport, types of transport systems, evolution of transport modes, transport problems and mobility issues; Urban form and Transport patterns, land use – transport cycle, concept of accessibility; Hierarchy, capacity and geometric design elements of roads and intersections; Basic principles of Transport infrastructure design; Traffic and transportation surveys and studies, traffic and travel characteristics; Urban transport planning process – stages, study area, zoning, data base, concept of trip generation Transport, environment and safety issues; principles and approaches of traffic management, transport system management.

#### **COURSE OUTCOME:**

The course	e Infrastructure and Transport Planning will enable the student to:
CO1	<b>Discuss</b> quantitative and qualitative assessment of infrastructure provisions and selected methodologies for suitable provisions and implementation.
CO2	Discuss the principles of design of utilities and services in urban and regional context.
CO3	<b>Experiment with</b> some of the tools and techniques for transportation network with special reference to urban areas.
CO4	Prepare comprehensive mobility plan

#### **TEXTBOOKS AND REFERENCES:**

- 1. Hudson, W.R., Hass, R.C.G. Uddin, W. (1997) Infrastructure Management, McGraw Hill, London.
- 2. Gifford, J.W. Uzarski, D.R. and McNeil, S. (1993) Infrastructure Planning and Management, American Society of Civil Engineers, Reston, VA.
- 3. Goodman, A. and Hartak, M. (2000) Infrastructure Planning Handbook, ASCE Press, Reston, VA.
- 4. Parkin, J. and Sharma, D. (1999) Infrastructure Planning, Thomas Jelford Publishing, London

# **First Year Second Semester**

3. Urban Development Finance & Project Planning (Code - 67241203)

						Maxim	um Mar	ks Allo	tted				Con	ıtact H	ours				
					Theory	Block		M	OOCs	Practica	l Block		p	er wee	ek		Mode		1
S. No.	Course Code	Category Code	Course Name	Conti	nuous Eval	uation	Major	Assignm		Continuous Evaluation		Total Marks				Total Credits	of		uration ( Exam.
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation	0		Lab Work & Sessional			L	T	P		ng		
3	67241203	DC	Urban Development Finance & Project Planning	20	20	30	30	1	1	-	-	100	2	1	-	3	Face to Face	PP	3Hrs

### **Overview of Development Finance**

Introduction to urban development finance. Economic Development. Finance Commissions- functions, relationship between Central, State and Urban Local Government. Finance Commissions & its function. Decentralization & fiscal dicentralization.

### **Municipal Finance**

Urban reform, Sources of revenues; Equities; Loans; Debt financing; City challenge fund, Pooled finance development fund, National urban infrastructure fund, Municipal Bonds, Miscellaneous sources; Structure of finances, fiscal problems and issues of financial management, implications of 74th Constitution Amendment Act for municipal finance, expenditure pattern, Bilateral and multi-lateral lending intuitions mobilizing resources for a project - financial resources, land resources, project resources, and other resources. Municipal Development Fund.

## **Investment Planning and Financing Mechanism**

Financing of urban development, infrastructure and services – mechanisms and instruments, subsidy reduction, cost recovery, public private partnerships; Financial appraisal, investment appraisal; Financial Risk – Sources, Measures and perspectives on risk, Sensitivity analysis.

# **Introduction to Project Management and Planning**

Definition of Project , Project Management – Definition and its importance; Stages of Project Life Cycle; Causes of Project Delay; Role of Project Manager; Attributes of a Successful Project Management. Introduction to Project Planning- Process, Investment Phase; Project Work (Work Breakdown Structure), Manpower and Organisation, Project Finance, Information System; Process of Project Formulation and constraints; Breakeven Analysis; Sensitivity Analysis; Project Budgeting; Project Scheduling - definition and steps; Network techniques and activity on Arc/Node; Forward Pass and Backward Pass; Critical Path and Slack; PERT; concept of Gantt Chart .

## **Project Appraisal, Monitoring, and Evaluation**

Project Appraisal (Introduction to Project Appraisal - Types of Feasibility, Financial and Economic Appraisals), Project Monitoring (Project Monitoring and criteria for decision making; Parameters and Tools of Control; Use of Network Analysis in Project Monitoring; Reporting and Corrective Actions; Resource Management and Project Reporting), Project Evaluation (Methods, tools, time frame and results)

# **COURSE OUTCOME:**

The cours	e Urban Development Finance & Project Planning will enable the student to:
CO1	<b>Discuss</b> Constitutional Provision for Local Finance, Municipal Finance, Innovations in Local Resource mobilisation and Local Government fiscal regime.
CO2	Compare the different roles of State as a resource manager, controlling state and reforming state in context of governance.
CO3	<b>Explain</b> the local governance framework at sub provincial level and resource mapping of local governments with special emphasis on municipal governments in our country.
CO4	Estimate financial risks for project investments relating to spatial planning.
CO5	Recommend appropriate methods for Technical and Financial Feasibility Analysis of different projects.

# **First Year Second Semester**

4. Departmental Elective-2: Urban Services Planning (Code - 67241211)

				Maximum Mar	ks Allotted			Contact Hours			
S. No.	Course Code	Category Code	Course Name	Theory Block	MOOCs	Practical Block	Total Marks	per week	Total Credits	Mode Mode F Exam	uration ( Exam.

					nuous Eval	uation	Major	Assignm		Continuous Evaluation			_		,		of Learni		
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation		Exam	Lab Work & Sessional			L	Т	Р		ng		
4.	67241211	DE	<b>Elective- Urban Services Planning</b>	-	-	-	-	25	75	-	-	100	3	-	-	3	Online 1	MCQ	3Hrs

This course covers the fundamentals of urban services planning including solid waste management, municipal health and social services and other urban services such as street lighting, fire services etc. Additionally, students are introduced to the different aspects of services planning such as strategic aspects, regulatory frameworks, life cycle analysis, environmental impact assessment, community participation & awareness generation and municipal governance & finance.

- Week 1: Urban Services Planning:Introduction Different type of municipal services, Strategic aspects, Regulatory framework, Role of stakeholders, Urban management and finance, Public private partnerships, Benchmarks, Government programs
- Week 2: Service planning approaches: Planning theories, Pollution and health perspectives, Greenhouse gas emission reduction, Environmental Impact assessment, Life cycle analysis, Community participation and awareness
- Week 3: Integrated municipal solid waste management and plan preparation for urban areas: Solid waste management rules, Extended producer responsibility, Source segregation, Decentralized waste management, Integration of informal sector, Municipal solid waste management planning and organizational setup, Operation and maintenance, Financial implementation plan, Schedule for plan preparation
- Week 4: Solid Waste generation, storage and minimization: Waste classification, Waste quantity, Waste minimization, Waste characteristics, Data collection and sampling strategy, Waste forecasting, Waste storage
- Week 5: Waste collection planning for urban areas: Primary and secondary waste collection strategies, Equipment, vehicles and staffing requirements, Depot, containers and transfer stations, Routing and scheduling for solid waste vehicles, Case studies
- Week 6: Waste processing, recycling and recovery planning: Waste processing, Concept of 3Rs, Recycling and recovery, Composting, Vermicomposting, E-waste management and recovery, Case studies
- Week 7: Waste disposal planning for urban areas: Landfill siting criteria, Landfill area calculation, Landfill Types, Landfill Design, Landfill phasing, Identification of land and inclusion in city development plan, Case studies
- Week 8: Adoption of advanced waste treatment technologies: Waste to energy, Incineration, Pyrolysis, Gasification, Biomethanation, Refuse derived fuel, Evaluation of alternative technologies, Case studies
- Week 9: Other municipal waste management services: Street sweeping, Cleaning of surface drains, Plastic waste, Construction and demolition waste, Hazardous waste management, Case studies

Week 10: Municipal health services: National urban health mission, Public health challenges, Health facilities, Stakeholders, Improving healthcare access for the urban poor, Community based healthcare programs, Epidemic and pandemic control, Government programs

Week 11: Municipal social services: Planning for economic and social development, Urban poverty alleviation, Vulnerable population groups, Social welfare services, Geriatric services, Government programs and case studies

Week 12: Other Municipal services: Street lighting services, Fire services, Urban forestry, environment and ecology, Provision of parks, gardens and playground, burial grounds and cremation facilities

# First Year Second Semester

# 4. Departmental Elective-2: Environmental Impact Assessment (Code - 67241212)

				Maxim	um Mar	ks Allo	tted	_			Conta	ct Hours			
				Theory Block			OOCs	Practica	l Block		per	week		Mode	.
S. No.	Course Code	Category Code	Course Name	Continuous Evaluation	Major	Assignm		Continuous Evaluation		Total Marks			Total Credit		 uration d Exam.
					Evaluation <b>Evaluation</b>	0	Exam	Evaluation	Evaluation	<u> </u>	L	T P		ng	

				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment				Lab Work & Sessional									
4.	67241212	DE	Elective- Environmental Impact Assessment	-	-	-	-	25	75	-	-	100	3	-	-	3	Online	MCQ	3Hrs

Environmental Impact Assessment (EIA) is a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse. EIA is basically a tool used to assess the positive and negative environmental, economic and social impacts of a project. This is used to predict the environmental impacts of a project in the pre-planning stage itself so that decisions can be taken to reduce the adverse impacts. In this course students will develop basic understanding of the history, need, structure, process, involved methods and challenges. Students will also learn criteria for selecting method for impact assessment, overview of methods, parameters for public participation ad technique for writing reports.

Week 1: Introduction to Environment Management & EIA

Week 2: Legal, Policy & Regulatory Framework

Week 3: EIA Procedure - Scoping & Screening and Establishing Baseline Conditions

Week 4: EIA Methodologies

Week 5:Connectedness: connected spaces and subspaces, Connectedness of the real line, Intermediate value theorem

Week 6: EIA Methods, Tools and Techniques

Week 7: Public Involvement in EIA

Week 8: Impact Management - Mitigation & Preparation of Environment Management Plans (EMP)

Week 9: EIA Reporting & Review of EIA Quality

Week 10: Decision Making & Project Management

Week 11: Implementation & Follow up

Week 12: EIA Case Examples

## First Year Second Semester

# 5. Planning Legislation & Professional Practice (Code - 67241204)



			Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment				Lab Work & Sessional									
5.	67241204	Specialization Course (SC-2) Planning Legislation & Professional Practice	20	20	30	30	1	1	1	1	100	2	1	1	3	Face to Face	PP	3Hrs

### Need of Urban Policy, its nature and process of making urban policy

Recent trends in urban policy planning, growth control and decline of management. Nature of urban problems, need of urban policies and its analysis. Theoretical frameworks, the role of institutions in the policy process, and the motivation of urban policy actors. Steps in Policy Analysis: How are policies made, who influences the policy agenda and what issues affect policy's 'success' and 'failure'? what can we learn from how different nations approach similar policy problems? Case studies in policy process analysis, policy integration: possible areas of integration.

### Concept of law, Indian Constitution and planning

Sources of law: custom, legislation and precedent; Meaning and terms of law: legislation, ordinance, bill, act, regulation, and bye-laws; Significance of law and its relationship to urban and regional planning. Statutory powers and responsibilities of the Central Government with respect to Urban Development and the role of implementing agencies. Critical appraisal of the 73rd and 74th Constitutional amendments, their effect on urban governance and local bodies.Legislative competence of Local, State and Central government to deal with various matters concerning Town and Country Planning.

# **Evolution of planning legislation & concepts**

Planning in India — Overview, an overview of legal tools connected with urban and regional planning and development. Town and Country Planning Act, Improvement Trust Act, Development Authorities Act: objectives, content, procedures for provision and implementation of regional plans, master plans and land pooling schemes. 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 Law.

#### Policies and acts

National Environmental Policy Act; Environmental Protection Act; Land Acquisition Act: Concepts, procedure for compulsory acquisition of property and determination of compensation. Regulatory Frameworks Governing Projects. National Rehabilitation and Resettlement Policy (2007) - Social Impact mitigation; National Environmental Policy (2006) – Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP)

Various Acts related to urban governance, planning and development organizations, land resources, environment protection, and public participation in statutory planning process; Approaches of formulation of policies, appraisal of policies.

#### **Professional Practice**

Aims and objectives of professional Institutes, sister bodies, professional role and responsibility of planning consultants, professional ethics, code of conduct and scale of professional charges; Formulation of project proposal and outlines, consultancy agreements and contracts, managerial aspects; Role in interdisciplinary groups: Appreciation of the decision-making processes and the process in relation to varied consultancy assignments of planning.

# **COURSE OUTCOME:**

The course	Legal issues and professional practice will enable the student to:										
CO1	CO1 Estimate the complex range of planning problems and policy issues associated with urban growth and change.  CO2 Discuss theoretical and legislative framework and related issues in urban planning										
CO2	Discuss theoretical and legislative framework and related issues in urban planning										
CO3	Discuss the evolution of Planning legislations in India and the role of various agencies involved in urban and regional planning and development										
CO4	Determine the role of different urban planning policies and acts in context of land management and environment protection.										
CO5	Develop professional ethics and a sense responsibility as a planning consultant										

# **First Year Second Semester**

# 6. Studio-II: City level Planning (Code - 67241205)

					Maxin	num Mar	ks Allo	tted				Con	tact H	ours			
				The	ry Block		M	OOCs	Practica	l Block		p	er wee	ek		Mode	
S. No.	Course Code	Category Code	Course Name	Continuous E	valuation	Major	Assignm		Continuous Evaluation		Total Marks				Total	of	uration ( Exam.
				Minor Mino Evaluation Evaluat I II	l Oniz/	Evaluation	-	Exam	Lab Work & Sessional	1 3		L	Т	P		ng	

	_																		
6	5.	67241205	DLC	Studio – II- City-Level Planning	-	-	-	-	-	-	70	30	100	-	-	12	6	experim so	-

## **City Development Plan (Group assignment)**

A City is a multi-dimensional, dynamic and futuristic space. Understanding the city involves appreciating this multi direction and including them in the city making process. The job of a physical planner does not merely understand the current conflict in development but to emerge from this and to come out with a vision for the city. To arrive at this vision, a planner needs to understand the dynamics of various components of the city and how and what level interventions can be made to achieve that vision. A group of students are expected to study a city in terms of its present problems and issues and project a futuristic vision in terms of scenario building.

#### **COURSE OUTCOME:**

This course	e will enable the student to:							
CO1								
CO2	Prepare socio-economic profile of the area through surveys							
CO3	Prepare physical and social infrastructure mapping and mapping of regional networks and linkages.							
CO4	Analyse the Gap in infrastructure and policies for the identified issues.							
CO5	Prepare a detailed Project report for the City Development Plan							

## **First Year Second Semester**

# 7. Seminar- (Social Research/ Report Writing) (Code - 67241206)

						Maxin	num Mar	ks Allo	otted				Con	tact H	lours			
					Theory	Block		M	OOCs	Practica	l Block		p	er we	ek		Mode	
S. No.	Course Code	Category Code	Course Name	Conti	nuous Eval	luation	- Major	Assignm		Continuous Evaluation		Total Marks				Total	of	 uration Exam.
				Minor Evaluation I	Minor Evaluation II	Quiz/ Assignment	Evaluation	0		Lab Work & Sessional			L	T	P		ng	

7.	67241206	DLC	Seminar- (Social Research/ Report Writing)	-	-	-	-	,	-	70	30	100	-	-	4	2	<b>1</b> entorin	so	-	İ
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The students are required to present a seminar ensuring the following criterion.

- Identification of topics of interest having relevance to the planning profession.
- Book reviews and journal article reviews to establish the body of work existing in the selected area of work.
- Exposure to multiple viewpoints and colloquial arguments by the stakeholders, decision makers, urban managers, advocates, technocrats, user groups, etc. on the same topic.
- Identification of key issues related to the area of work.

### **COURSE OUTCOME:**

This course	e will enable the student to:							
CO1	Develop independent critical thinking and research abilities							
CO2	Compare relevant case studies and literature relevant to the topic.							
CO3	Evaluate the current practices adopted in context of the selected topic							
CO4	Recommend solutions for the identified key issues related to the area of work.							
CO5	Prepare a document enlisting significant tools, techniques, issues and alternatives related to the selected topic.							

# First Year Second Semester

# 8. Classified Novel Engaging Course (Activity Based Learning) (Code - 67241207)

				N	aximum Maı	ks Allo	otted				Cont	act Hour	s			
				Theory Bloc	k	M	OOCs	Practica	l Block		pe	r week		Mode		
S. No.	Course Code	Category Code	Course Name	Continuous Evaluation		Assignm		Continuous Evaluation		Total Marks			Total Credit	of	Mode	uration ( Exam.
				Minor Minor Qu Evaluation Evaluation Assign	iz/ Evaluatio	0		Lab Work & Sessional			L	TP		ng		

8.	67241207	NEC	Classified Novel Engaging Course Activity Based Learning)	-	-	-	-	-	-	-	50	50	-	1	-	1	nteractiv	so	-	1
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Students have to opt for NEC at institute level.