Course Structure for Postgraduate Programme

Leading to the award of

Degree of Master of Planning

(Specialization in Urban and Regional Planning)

Session 2019-'20 onwards

Duration of the courses

4 Semesters (Two Years)

Adopted in the 223rd Meeting of the DAC held on 24, 27 May 2019; the 1st Meeting of the BOAC held on 04 Jul 2019; and,

Approved in the 22nd Meeting of the Senate held on 08, 10, 11 Jul 2019.

Department of Architecture, Town and Regional Planning
Indian Institute of Engineering, Science and Technology, Shibpur

Framework for Contact hour, Credit and Marks

Sl. No.	Subject typology	Contact hour (period)	Credit	Marks
1	Theory (Full Paper)	3	3	100
2	Theory (Half Paper)	2	2	50
3	Studio /Laboratory	3	2	100
4	Field visit/ Studio viva-voce examination/Thesis viva-voce examination	-	2	50

Summary of Contact hour, Credit and Marks

Sl. No.	Semester	Contact hour (period per week)			Credit			Marks		
		Lecture	Studio/ Lab/ Examination	Total	Lecture	Studio/Lab/ Examination	Total	Lecture	Studio /exam	Total
1	First Semester	15	12	**27**	15	10	**25**	500	400	**900**
2	Second Semester	14	12	**26**	14	10	**24**	450	450	**900**
3	Third Semester	3	15	**18**	3	14	**17**	100	600	**700**
4	Fourth Semester	-	16	**16**	-	24	**24**	-	500	**500**
Grand Total					32	48	**90**	1050	1950	**3000**

Course Structure – First Year First Semester (1st Sem.)

Course Code	Course Title		Class Load / Week			Marks	Credit
Theoretical Courses			**L**	**T**	**S**		
AP6101	Planning Theory		3	0	0	100	3
AP6102	Transportation Planning		3	0	0	100	3
AP6103	Infrastructure, Network and Services		3	0	0	100	3
AP6104	Statistical Methods and Planning Techniques		3	0	0	100	3
AP6121	Departmental Elective (any one)	Socio-Economic Basis of Planning	3	0	0	100	3
AP6122		Disaster Mitigation Planning					
	Sub total		**15**	**0**	**0**	**500**	**15**
Practical Courses (Project / Laboratory / Viva-Voce)							
AP6171	Planning Project I		0	0	9	300	6
AP6172	GIS and Remote Sensing		0	0	3	50	2
AP6191	Planning Viva-Voce I		Examination Only			50	2
	Sub total		**0**	**0**	**12**	**400**	**10**
TOTAL			**27**			**900**	**25**

Course Structure – First Year Second Semester (2nd Sem.)

Course Code	Course Title		Class Load / Week			Marks	Credit
Theoretical Courses			**L**	**T**	**S**		
AP6201	Metropolitan and Regional Planning		3	0	0	100	3
AP6202	Environmental Planning		2	0	0	50	2
AP6203	Planning Legislation and Professional Practice		3	0	0	100	3
AP6204	Housing and Urban Renewal		3	0	0	100	3
AP6221	Departmental Elective/ Open Elective offered by another Dept. (any one)	Urban Design and Conservation	3	0	0	100	3
AP6222		Rural Development and Planning					
	Sub total		**14**	**0**	**0**	**450**	**14**
Practical Courses (Project / Viva-Voce)							
AP6271	Planning Project II		0	0	12	400	8
AP6291	Planning Viva-Voce II		Examination Only			50	2
	Sub total		**0**	**0**	**12**	**450**	**10**
	TOTAL		**26**			**900**	**24**

Course Code	Course Title	Class Load / Week			Marks	Credit
Open Electives (for other Departments)		**L**	**T**	**S**		
AP6161	Climate Change and Human Settlements (in 1st Semester)	3	0	0	100	3
AP6261	Smart City Planning (in 2nd Semester)	3	0	0	100	3

Course Structure – Second Year First Semester (3rd Sem.)

Course Code	Course Title	Class Load / Week			Marks	Credit
Theoretical Courses		**L**	**T**	**S**		
AP7101	Urban Governance and Finance	3	0	0	100	3
	Sub total	**3**	**0**	**0**	**100**	**3**
Practical Courses (Thesis / Viva-Voce)						
AP7171	Planning Thesis I	0	0	9	300	6
AP7172	Detailed Project Report	0	0	6	200	4
AP7191	Planning Thesis Viva-Voce I	Examination Only			50	2
AP7192	Fieldwork and Training Viva-Voce	4 - 6 weeks			50	2
	Sub total	**0**	**0**	**15**	**600**	**14**
TOTAL		**18**			**700**	**17**

Course Structure – Second Year Second Semester (4th Sem.)

Course Code	Course Title	Class Load / Week			Marks	Credit
Practical Courses (Thesis / Viva-Voce)						
AP7271	Planning Thesis II	0	0	16	300	12
AP7291	Planning Thesis Report	Examination Only			100	8
AP7292	Planning Thesis Viva-Voce II	Examination Only			100	4
	TOTAL	**0**	**0**	**16**	**500**	**24**

First Year First Semester (1st Sem.)

AP6101 | Planning Theory | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to assist the students in developing cognitive skill in planning through exposure of evolution of thoughts, theories and practices of planning of human settlement.

COURSE OUTCOME

On successful completion of this course, the students will be able to:—

(i) understand the planning as a process and its methodology;
(ii) identify potential, scope and limitation of different paths of evolution of thoughts of planning of human settlement;
(iii) identify potential, scope and limitation of different theories embodying of thoughts of planning of human settlement;
(iv) develop cognitive skill in philosophies and thoughts of planning of human settlement;
(v) contribute in guiding the current and future process of planning of human settlement.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Planning process and methodology	6
2	Evolution of thoughts of planning of human settlement since prehistoric till Neo Classic or Renaissance Period	6
3	Evolution of thoughts of planning of human settlement in post-industrialisation period	8
4	Planning Theories	8
5	Evaluation of planning practices	8
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Planning process and methodology 6 periods

1.1 Introduction, Definition of planning in general and physical planning in particular; Goal formulation, objective, scope, limitations;

1.2 Urban/Rural Settlements and their classification;

1.3 Necessity and rationale of planning; the characteristics of planning;

1.4 The planning process; normative planning, positive planning and ameliorative planning.

Module 2 Evolution of thoughts of planning of human settlement since prehistoric till Neo Classic or Renaissance Period 6 periods

2.1 Principal aspects for consideration in the development of Settlement Planning Thought;

2.2 Man as Hunter, Man in the barbaric Stage, The Bronze Age;

2.3 Historic Period, Sumerian civilisation, Egyptian period;

2.4 Oriental culture and civilisation: India, Vedic Age, Indus-Valley Civilisation;

2.5 Crete civilisation: 2000 B.C. Greek Civilisation;

2.6 Roman Period: 6th. Century B.C. to 5th. Century A.D.;

2.7 Developments in India during 6th. Century B.C. to 5th. Century A.D., Buddha Period, The Maurya Period, The Gupta Period, Extracts from Chanakya's Arthashastra, Manasara Vastushastra;

2.8 Medieval period, Contemporary Development in India;

2.9 Neo Classic or Renaissance Period, India in the Renaissance Period.

Module 3 Evolution of thoughts of planning of human settlement in post-industrialisation period 8 periods

3.1 The Industrial Revolution: 18th Century till date, Effects of Neo-Classic Period, America Develops (Late 16th and early 17th Century), Great Britain: 18th Century;

3.2 Effects of Industrial Development, Effects of other inventions, The Factory Town, What it was like, 19th Century in India;

3.3 The Paris Experience, The City Beautiful Movement in America, Emergence of Commercial Cities;

3.4 Basic changes in planning approaches took place – 1900 A.D., Chaotic growth of cities started;

3.5 Start of modern trends in town planning, The Ideal factory Town by Owen, Public Sector and Housing Concerns, Fast urbanisation and rising land prices, The seeds of City Planning;

3.6 The Suburb develops and Urbanity changes.

Module 4 Planning Theories 8 periods

4.1 The theory is framed, Planned decentralisation, Ebenezer Howard's Garden City in 1898;

4.2 Modern urban planning, Planning within Physical and Social Frameworks, Patrick Geddes, Geddesian Triad, Patrick Geddes-planning concepts;

4.3 Neighbourhood Unit, Radburn Concept;

4.1 Twentieth Century Development in India, Political Unrest, New Delhi, Patrick Geddes in India, Improvement Trusts, Bombay Town Planning Act, 1915, Building Byelaws; Need for Internal Structural Change, Future Urban Structure and Reorganisations, Soria Y. Mata: 1882: Linear City, Ludwig Hilberseimer, Le Corbusier - La Ville Contemporaine: 1922 (Concentric City), Plan Voisin: 1925, La Ville Radieuse: 1930—The Radiant City, Two Classes of Followers of Patrick Geddes, C.I.A.M. (Congrès Internationaux d'Architecture Moderne): 1928, Linear industrial City, Lewis Mumford: The Culture of Cities: 1938;

4.2 Ekistics and the City, Ekistics units, Ekistics – Nature and goal of settlement, Satellite towns, Ribbon development;

4.3 Theories of Urban Structure, Urban Sub-systems, Concepts of land Location attributes and land uses, Von Thünen's Theorem, Determinants of Land use and relationship to the Planning Process, Demand and supply of land for urban use means and mechanisms - impact on urban structure, Land use and land value theory of William Alonso; General goals of land policy;

4.4 Urbanism, Theories of city development including Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory, Central Place Theory and other latest theories; City as an organism: a physical, social, economic and political entity; Systems Approach to planning, Emerging Concepts: global city, inclusive city, safe city, etc.; City of the future and future of the city; Shadow cities, divided cities; Models of planning: Advocacy and Pluralism in Planning; Systems approach to planning: rationalistic and incremental approaches, mixed scanning and middle range planning; Equity planning; Political Economy Model; Types of development plans, plan making process.

Module 5 Evaluation of planning practices 8 periods

5.1 Urban challenges of the 21st century;

5.2 Why does urban planning need to change? Why is there a revived interest in urban planning?

5.3 Potentials offered by new approaches to urban planning, Defining urban planning and identifying normative principles;

5.4 The emergence of modernist planning;

5.5 Innovative approaches to urban planning.

REFERENCE BOOKS

1. Hall, P., 2001, Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century, Blackwell, London.
2. McLaughlin, J. B., 1969, Urban and Regional Planning. A systems approach, Faber and Faber, London.
3. Faludi, A., 1973, A Reader in Planning Theory, Pergamon Press, London.
4. Peter, G. H. and Tewdwr-Jones, 2011, Urban and Regional Planning, M., Routledge, London. Fifth Edition.
5. Healey, P., 1997, Collaborative Planning: Shaping Places in Fragmented Societies, Macmillan, London.

AP6102 | Transportation Planning | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to introduce the fundamental principles of transportation planning to the first semester students of urban and regional planning.

COURSE OUTCOME

On successful completion of this course, the students will:

(i) be able to conceive transportation planning as a process,
(ii) have a fair idea regarding the elements and principles of transportation planning,
(iii) have a fair idea of the linkages between urban structure/ land use and transportation planning, and
(iv) have knowledge to prepare transportation plan for an urban area.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to transportation planning	3
2	Fundamentals of traffic engineering	6
3	Urban travel demand forecasting	8
4	Public transit systems	5
5	Local area traffic management and transportation safety	5
6	Land use – transportation inter-relationship	3
7	Environmental and economic aspects of transportation planning	3
8	Emerging technology and ITS	3
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction to transportation planning 3 periods

Transportation systems – evolution, technological characteristics, modes and classifications; transportation related issues; transportation surveys.

Module 2 Fundamentals of traffic engineering 6 periods

2.1 Nature of traffic flow, parameters of traffic flow, speed-flow-density relationship
2.2 Models of traffic stream characteristics
2.3 Traffic analysis and design considerations
2.4 Design of intersections; grade separation and flyover
2.5 Traffic signals.

Module 3 Urban travel demand forecasting 8 periods

3.1 Introduction to sequential travel demand forecasting
3.2 Trip generation
3.3 Trip distribution
3.4 Trip assignment

3.5 Modal split.

Module 4 Public transit systems **5 periods**

4.1 Elements of planning and demand assessment
4.2 Planning approach with a case of uninterrupted flow
4.3 Capacity analysis in case of interrupted flow
4.4 Transit operation design and transit planning.

Module 5 Local area traffic management and transportation safety **5 periods**

5.1 Pedestrian and Bicycle facilities
5.2 Intermediate public transport modes
5.3 Parking facilities
5.4 Traffic planning and management at the local level
5.5 Transportation safety.

Module 6 Land use – transportation inter-relationship **3 periods**

6.1 Urban structure and urban travel characteristics
6.2 Land use and transportation; selected transportation-land use models.

Module 7 Environmental and economic aspects of transportation planning **3 periods**

7.1 Environmental impacts of traffic; energy issues in transportation
7.2 Economic evaluation of transportation systems.

Module 8 Emerging technology and ITS **3 periods**

8.1 User services; architecture components of Intelligent Transportation Systems (ITS)
8.2 ITS applications.

REFERENCE BOOKS

1. Transportation Engineering and Planning / C. S. Papacostas and P. D. Prevedouros.
2. Transportation Engineering: An Introduction / C. J. Khisty and B. K. Lall.
3. Traffic Engineering and Transport Planning / L. R. Kadiyali.

AP6103 | Infrastructure, Network and Services | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to introduce the basic principles of planning for various infrastructure and services to the first semester students of urban and regional planning.

COURSE OUTCOME

On successful completion of this course, the students will:

(i) have a fair idea regarding the elements and principles of planning for various infrastructure and services,

(ii) have a fair idea regarding the planning of network for those services

(iii) have a fair idea of the linkages between urban structure/ land use and infrastructure/services planning, and

(iv) have knowledge to prepare plan for infrastructure/services for an urban area.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to infrastructure, network and services	3
2	Water supply system	6
3	Sanitation and waste water disposal	5
4	Storm water management and urban drainage	5
5	Solid waste management	6
6	Planning for fire protection, electricity and communication network	3
7	Planning for social infrastructure	5
8	Economic analysis for networks and services	3
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction to infrastructure, network and services 3 periods

Introduction to the elements of infrastructure, its significance, and its relation with urban planning; design and operation of urban services and network systems; provision of infrastructure and role of the state.

Module 2 Water supply system 6 periods

2.1 Quality and quantity of water requirement

2.2 Sources of water

2.3 Collection and conveyance of water

2.4 Treatment methods

2.5 Treatment plant location; planning distribution systems and their zoning with respect to urban structure.

Module 3 Sanitation and waste water disposal 5 periods

3.1 Characteristics of waste water; separate and combined systems

3.2 Sanitary sewer system

3.3 Waste water treatment methods

3.4 Planning and location of treatment plants

3.5 Disposal of municipal and industrial effluents, effects on rivers and water bodies.

Module 4 Storm water management and urban drainage 5 periods

4.1 Estimating storm runoff

4.2 Storm water collection

4.3 Storm water disposal and drainage

4.4 Water harvesting, recycling and reuse.

Module 5 Solid waste management 6 periods

5.1 Elements of solid wastes management; classification and properties of solid wastes

5.2 On site collection, storage, transportation and disposal of solid wastes

5.3 Processing and treatment of solid waste

5.4 Recycling and reuse of solid waste.

Module 6 Planning for fire protection, electricity and communication network 3 periods

6.1 Planning for fire protection.

6.2 Planning for electricity network.

6.3 Planning for communication network.

Module 7 Planning for social infrastructure 5 periods

7.1 Typologies of social infrastructure

7.2 Planning for education and health services

7.3 Planning for recreational, socio-cultural, tourism and other facilities.

Module 8 Economic analysis for networks and services 3 periods

8.1 Cost of services

8.2 Cost recovery and pricing

8.3 Subsidies and social justice.

REFERENCE BOOKS

1. Basic Environmental Technology / J. A. Nathanson.
2. Water Supply, Waste Disposal and Environmental Engineering / A. K. Chatterjee.
3. Infrastructure Planning Handbook: Planning, Engineering and Economics / A. S. Goodman and M. Hastak.

AP6104 | Statistical Methods and Planning Techniques | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to introduce a graduate student of Architecture and/or Civil Engineering to the analytical (quantitative) tools and techniques for application in Urban and Regional Planning.

COURSE OUTCOME

On successful completion of this course, the students will:

(i) be able to know the need for analytical techniques in Planning,

(ii) have a fair idea on various analytical techniques including Statistical methods, and,

(iii) be able to identify appropriate analytical technique/s for a given Planning problem.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to Statistical Methods	6
2	Working with variables	6
3	Projections	6
4	Data and Sampling	3
5	Analytical Techniques in Planning	9
6	Hypothesis Testing	6
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction to Statistical Methods 6 periods

Introduction Statistics and Frequency Distribution, Measures of Central Tendency, Measures of Dispersion, Elementary knowledge of Probability, basic knowledge of application in software.

Module 2 Working with variables 6 periods

Correlation, Regression types and analyses, ANOVA.

Module 3 Projections 6 periods

Time series analysis, population forecasting methods.

Module 4 Data and Sampling 3 periods

Collection and presentation of Data, Design of Questionnaire/s, Sample Survey: Sampling techniques.

Module 5 Analytical Techniques in Planning 9 periods

Useful techniques in Planning like Multi-Criteria Decision Making techniques, Principal Component Analysis, Cluster Analysis, Introduction to Linear Programming, Introduction to Fuzzy techniques, participatory techniques etc.

Module 6 Hypothesis Testing 6 periods

Test of Significance, Test of Hypotheses – parametric and non-parametric tests.

REFERENCE BOOKS

1. 3e Statistics – A Gentle Introduction / Frederick D. Coolidge
2. Statistical Methods / N. G. Das
3. Probability and Statistics for Engineers / Dr. J. Ravichandran.

AP6121 | Socio-economic Basis of Planning | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to assist the students to develop understanding the relevance of Socio-economic Issues in Urban and Regional Planning.

COURSE OUTCOME

On successful completion of this course, the students will be able to:

(i) understand the concept of development;
(ii) identify potential, scope and limitation of sociology to development planning;
(iii) identify potential, scope and limitation of economics to development planning;
(iv) identify potential, scope and limitation of environmental economics to development planning;
(v) contribute in guiding the current and future process of planning of human settlement in terms of socio-economic aspects.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Development Theory	6
2	Nature and Scope of Sociology	6
3	Community and Settlements	8
4	Elements of Micro and Macro Economics	8
5	Development Economics and Lessons from Indian Experiences	8
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Development Theory **6 periods**

1.1 Concepts and definition of development. Indicators of development. Factors influencing development;

1.2 Efficiency versus equality. Theories of development (Trickle down, Bottoms up) Settlements systems. secondary cities;

1.3 Broad introduction to main stream, classical and market theories of development and under development;

1.4 Dependency, imperialism as a hegemonic influence of developed over the under developed, Dichotomy of North-South, Rich-Poor in relation to development. Regional disparities in development;

1.5 Surplus generation of primary sector and its influence on development. Investment, public policy and development;

1.6 Development as defined and implied in Indian planning and related development.

Module 2 Nature and Scope of Sociology **6 periods**

2.1 Definition and scope of sociology;

2.2 Sociological concepts and methods, man and environment relationships;

2.3 Socio-cultural profile of Indian society and urban transformation; Tradition and modernity in the context of urban and rural settlements; Issues related to caste, age, sex, gender, health safety, and marginalized groups;

2.4 Displacement, resettlement and rehabilitation due to compulsory land acquisition;

2.5 Relationship between sociology and town planning, Relative significance of social, geographical, biological and economic factors in shaping the total environment.

Module 3 Community and Settlements 8 periods

3.1 Social problems of slums and squatters 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;

3.2 Role of socio-cultural aspects on growth patterns of city and neighbourhood communities; Social planning and policy, and community participation;

3.3 Marginalization and concepts of inclusive planning, and gender concerns in planning;

3.4 Settlement Policy: National Commission on Urbanization, Rural Habitat Policy and experiences from developing countries regarding settlement structure;

3.5 Growth and spatial distribution.

Module 4 Elements of Micro and Macro Economics 8 periods

4.1 Concepts of demand, supply, elasticity and consumer markets; concept of revenue costs; Economies of scale, economic and social costs, production and factor market;

4.2 Different market structures and price determination; market failures, cost-benefit analysis, public sector pricing;

4.3 Determinants of national income, consumption, investment, inflation, unemployment, capital budgeting, risk and uncertainty, and long-term investment planning.

Module 5 Development Economics and Lessons from Indian Experiences 8 periods

5.1 Economic growth and development, quality of life; Human development index, poverty and income distribution, employment and livelihood;

5.2 Economic principles in land use planning;

5.3 Policies and strategies in economic planning, balanced versus unbalanced growth, public sector dominance;

5.4 Changing economic policies, implications on land.

REFERENCE BOOKS

1. N. Jayapalan Urban Sociology 2002 Atlantic Publishers & Distributors, New Delhi.
2. William G. Flanagan Urban Sociology-images and Structures 2010 Rowman & Littlefield Publishers Inc.
3. Dr. D N Dwivedi Principles of Economics 2006 Vikas Publishing House.
4. Karl E. Case Principles of Economics 2009 Pearson Education.
5. Jhingan, M., The Economics of Development and Planning, 1998 Vrinda Publications, Delhi.

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AP6122 | Disaster Mitigation Planning | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to provide an understanding of natural and human induced disasters, and the increased vulnerability of communities to extreme natural events, in view of changes in human settlement patterns, land-use decisions, and political and social policy dynamics, through in-depth discussions of the disaster management cycle, and the role of planners in reducing vulnerabilities and increasing resilience at each of the stages of the DM cycle, through use of tools and techniques for hazard mitigation planning.

COURSE OUTCOME

On successful completion of this course, the students will be able to**:**

(i) describe the difference between hazards and disasters.
(ii) be aware of the changing global vulnerability scenario.
(iii) have a detailed understanding of the hazard exposure and the disaster vulnerability of the Indian subcontinent and South Asia
(iv) analyse local and central emergency management strategies for mitigating hazards.
(v) identify steps in the risk assessment process.
(vi) recognize tools and techniques for hazard mitigation planning.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to disasters	2
2	Disaster mitigation and management: Paradigms and policies	9
3	Preparedness and planning	10
4	Disaster response: Planning for response	3
5	Disaster recovery: Planning for recovery	3
6	Planning for rehabilitation and reconstruction	3
7	Gender and disasters	3
8	Best practices in disaster mitigation planning	3
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction to disaster **2 periods**

1.1 Introduction to Disasters: Definitions of disaster, hazard, vulnerability, capacities, and risk.

1.2 Overview of major natural and human induced disasters at global and national levels and their impact on communities

1.3 Disaster profile of the Indian subcontinent-The Vulnerability Atlas of India.

Module 2 Disaster mitigation and management: Paradigms and policies **9 periods**

2.1 Disaster Mitigation Policies: History and Institutions (Global and National)

2.2 The Disaster Management Cycle

2.3 Components of Risk and Risk Reduction Strategies (Reduction of vulnerability and hazard exposure, increase of capacities)

Module 3 Preparedness and planning 10 periods

3.1 Vulnerability Assessment-Structural and Non-structural assessment measures

3.2 Community Resilience

3.3 Emergency Management Planning

3.4 Communication and Risk Management (Policies and Plans)

Module 4 Disaster response: Planning for response 3 periods

4.1 Emergency planning

4.2 Supporting emerging response using geo-spatial technologies

4.3 Collaboration and coordination in emergency response planning and management

Module 5 Disaster recovery: Planning for recovery 3 periods

5.1 Recovery time frames

5.2 Long-time recovery

Module 6 Planning for rehabilitation and reconstruction 3 periods

6.1 Concept of recovery, livelihood and approach to reconstruction, livelihood restoration.

6.2 Housing reconstruction.

Module 7 Gender and disasters 3 periods

Social vulnerability vis-à-vis gendered environments

Module 8 Best practices in Disaster Mitigation Planning 3 periods

8.1 National examples of best practices in DMP: Odhisha, Gujarat etc.

8.2 International examples of best practices in DMP: USA, Japan, New Zealand, Turkey.

REFERENCE BOOKS

1. Jha, M.K., 2010. *Natural and anthropogenic disasters*. Springer Science+ Business Media BV.
2. Ecosystem Approach to Disaster Risk Reduction Edited by Anil K. Gupta Sreeja S. Nair
3. Sahni, P., Dhameja, A. and Medury, U., 2001. *Disaster mitigation: experiences and reflections*. PHI Learning Pvt. Ltd.
4. Rodríguez, H., Quarantelli, E.L. and Dynes, R.R. eds., 2006. *Handbook of disaster research* (pp. 489-507). New York: Springer.
5. Enarson, E. and Chakrabarti, P.D. eds., 2009. *Women, gender and disaster: global issues and initiatives*. SAGE Publications India.
6. Murty, C.V.R., et al. *Earthquake Rebuilding in Gujarat, India*. NICEE, IIT Kanpur.

AP6171 | Planning Project I | 6 credits

Course Duration	Contact periods	Full Marks
13 weeks	9 studio classes per week	300

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of Appreciation of Site Planning, Area Planning, and City Development Plan.

COURSE OUTCOME

On successful completion of this course, the students will be able to**:**

(i) acquainted with different planning issues and how to document and present them through a precise technical writing methods;

(ii) understand Development Issues;

(iii) assimilate the process of preparation of residential development schemes;

(iv) appreciate contextual location of area in relation to city;

(v) assimilate the process of preparation of site planning.

COURSE EVALUATION

Evaluation for the course will consist of **two Interim Reviews of 100 marks each** and **100 marks for End Semester presentation** of Drawing and Report, by a Board of Jury of at least three Examiners consisting of the Course Teacher/s, one External Examiner and one Internal Examiner nominated by the Departmental Postgraduate Committee (DPGC).

MODULAR DIVISION OF THE SYLLABUS

ASSIGNMENT	TOPIC	STUDIO PERIODS
1	Literature Review	18
2	Residential development	27
3	Area Appreciation	36
4	Site Planning	36

DETAIL COURSE CONTENT

The content of Planning Project I may include but not limited to the following topics on which the students are expected to work hands on, in individual capacity or in a team, including occasional field trip to various organizations, libraries, offices and various urban and rural areas within India or abroad, for the purpose of collection/procurement of data including photographs, imageries, maps, reports, statistical and population handbooks and for the purpose of conducting study and primary survey, as may be instructed by the subject teacher from time to time:

Literature surveys on planning and related fields are to be made. Exercise on exposure to neighbourhoods, zones and cities with knowledge of mapping and satellite imagery. Study on urban problems – identification, data collection and classification from smaller to larger urban areas. Introduction to planning survey techniques, may include but not limited to – land use, demographic features, socioeconomic, traffic and transportation, services and infrastructure, environmental issues. Preparation and representation of spatial and non-spatial data in conventional and digital format are to be made. Analysis of planning data, analysis of data for future projection, introduction to planning mechanism for local self-governments of urban/rural areas are to be made. Case studies, preparation of drawings and reviews of progress.

Students may require to visit urban/rural areas in India or abroad for the purpose of carrying out planning study/survey for a duration of not exceeding 2 weeks during which all other classes will be suspended.

The following assignments are suggestive and may be applicable as per convenience.

Assignment 1: Literature Review (Individual Assignment) 18 periods

Each student is expected to read the articles given from a journal or a few books related to planning and write summary of not more than a page (250 words only) of each, highlighting the problem, approach, methodology, analysis, how the author arrived at the conclusion. There will be a negative marking for writing the same text as in the original (that is copying from the original text given to them).

Assignment 2: Residential development (Group Assignment) 27 periods

Preparation of a residential development scheme with schematic housing layout, services, roads and other network.

Assignment 3: Area Appreciation (Individual Assignment) 36 periods

The aim of the area appreciation exercise is to enable the students to understand and contextualize the location of the area in relation to the city, zone and area in which the particular place is situated. This is done in relation to the socio-economic, spatial and cultural characteristics of that city, zone, location, etc. The main purpose is to make the students appreciate the locational attributes of land parcels for future development in a city. Due to the size of the area, this exercise is done in groups of students being assigned to a particular area.

The following planning issues at area level should be identified:

- Review of the Master Plan / Zonal / Area plan in relation to the selected areas.
- Appreciation / Analysis of ward level data.
- Perception of areas in terms of legal / illegal / authorized / unauthorized, Slums, Urban Aesthetics.
- Social Categorizations of people - Type of population living, people's perception about area and its planning problems.
- Land use including Agriculture land and land use conflicts, extent (%) of broad land use such as commercial, industrial, residential, institutional and recreational.
- Extent of formal / informal activities present in the area including their location and conflicts.
- General land tenure of the area and land value for different uses.
- Major types of transport, type of roads, hierarchy of roads, type of transport modes used.
- Amenities: Location of Social and Physical infrastructure and their problems as perceived by local population. Look for specific infrastructure such as Water supply, drainage (water logging areas), waste collection and disposal system, sanitation, etc.
- Environmental Issues: Open Spaces – Availability and extent of open space to built-up area, garbage disposal, encroachment (through photographic evidences and sketches).
- Locating the study area in the zone, city and regional context with respect to all the above aspects.

Assignment 4: Site Planning (Individual Assignment) 36 periods

Site planning is a process whereby the optimum utilization of potential of site is considered recognizing the constraints the site has. It uses all three dimensional spaces of the site and the associated locational advantages, human activities and the regulations that are assigned to a particular site. The site is developed using a set of standards / norms in a given context which varies from location to location. A student is expected to understand the intricacies and interface between various variables such as soil conditions, topography, environmental dimensions, location, spatial standards applicable to the site, etc.

REFERENCE BOOKS

1. Lynch, Kevin. Site Planning
2. Smith, Carl, et al. Residential Landscape Sustainability – A Checklist Tool, 2008, Blackwell Pub., Oxford.
3. Ministry of Urban Development, Govt. of India. Revised Tool Kit for Preparation of CDP, Government of India, New Delhi.

AP6172 | GIS and Remote Sensing | 2 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 laboratory classes per week	50

COURSE OBJECTIVE

The objective of this course is to enable the students to analyse remotely sensed data with the help of Geographical Information System tools like Arc-GIS etc. It will assist them in the informed decision making process in different urban planning projects, with a focus on practical real world application cases for planners like site selection, impact assessment, creation of digital repository, changes in land use and land cover types, etc.

COURSE OUTCOME

On successful completion of this course, the students will be able to:—

(i) obtain computer generated information from a variety of sources,
(ii) bring out meaningful information by analysing remotely sensed data by satellites,
(iii) use GIS as a tool for mapping, analysis and graphically display of planning data,
(iv) transfer field data to computer and produce satisfactory and verifiable graphical output, and
(v) use IT skills to produce quality presentations.

COURSE EVALUATION

This module is continuously assessed during the course of the semester. The next paragraph provides a guidance on the evaluation of the course and an explanation on the assessment categories.

In this course there are two components of assessment; one relates to the practical skills the student will develop in the course of the module and is therefore based on use of the software (80%). The second (20%) relates to the student's appreciation of the potential use of GIS in a practical application and will allow them to develop appreciation of how GIS can be used in planning and more specifically the area in which he/she is interested in (waste/ LULC/ sustainability etc.). This final element involves a *Chalk and Talk* (Blackboard) session and a report on the role that GIS can play in planning and management. The student should aim to achieve a minimum of 50% aggregate mark for the coursework for successful completion of the course.

The weightings of the coursework are as follows:
1. Coursework 1: 40%
2. Coursework 2: 40%
3. Appreciation of the application of GIS to a particular field: 20%

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to Remote Sensing	3
2	Introduction to GIS	3
3	Coursework 1: Basic concepts in satellite remote sensing	15
4	Coursework 2: GIS applications and its role in physical planning	15
5	Appreciation of the application of GIS to a particular field	3

DETAILED COURSE CONTENT

Module 1 Introduction to Remote Sensing 3 periods

1.1 Sources of Energy, Electro Magnetic Spectrum and Radiation, Spectral reflectance curves.
1.2 History of Remote Sensing
1.3 Remote sensing components, Active and Passive remote sensing
1.4 Introduction to an Image processing and analysis software tool.

Module 2 Introduction to GIS 3 periods

2.1 Basic concepts of GIS

2.2 Geo-referencing and coordinate systems

2.3 Introduction to a GIS software tool.

Module 3 Coursework 1: Basic concepts in satellite remote sensing 15 periods

3.1 Basic concepts in satellite remote sensing, satellites, sensors and coverage

3.2 Principles of digital image processing, satellite data products and its use

3.3 Application of remote sensing in regional studies - geology, geomorphology, forest and vegetation, water resource and drainage system, land use and land cover analysis, urban sprawl studies.

3.4 Identification of land surface features by making composites, Role of false composites.

3.5 Urban remote sensing issues- Troubles faced in real world application.

Module 4 Coursework 2: GIS applications and its role in physical planning 15 periods

4.1 GIS applications in planning and its role in physical planning;

4.2 Creation of digital database for GIS, representation & storage of spatial data, processing tools, data analysis and modeling;

4.3 Introduction to GPS technology.

Module 5 Appreciation of the application of GIS to a specific field of planning 3 periods

Students are required to submit a report and present their work in the class.

R E C O M M E N D E D R E A D I N G S

Books

1. Schuurman, N (2004) GIS, A Short Introduction Blackwell Publishing
2. Heywood Ian, Cornelius Sarah, Carver Steve (2002) An Introduction to Geographical Information Systems, Longman
3. Longley et al GIS and Science (2005) Wiley
4. DeMers Michael N (2000) Fundamentals of GIS, Wiley (2nd edition)
5. Mitchell A (1997-1998) Zeroing In ESRI
6. Obermeyer Nancy, Pinto Jeffery (1994) Managing GIS, Guildford Press (910.285 O12)
7. Worboys Michael F (1997) GIS: A Computing Perspective, Taylor and Francis
8. The Handbook of Geographical Information Science – Wilson and Fotheringham Blackwell 2008.

Online Resources

1. http://campus.esri.com
2. www.opensourcegis.org
3. http://www.gis.com
4. www.esri.com
5. www.qgis.com

Journals

1. Transactions in GIS
2. Journal of Geographical information science
3. International journal of geographical information science
4. Journal of Environmental Management
5. Applied Geography
6. Remote Sensing of the Environment
7. Landscape and Urban Planning
8. Built Environment

AP6191 | Planning Viva-Voce I | 2 credits

Contact periods	Full Marks
End Semester Examination only	50

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of presentation and oral communication on the assignments completed in "Planning Project I (AP6171)".

COURSE OUTCOME

On successful completion of this course, the students will be able to acquire the skill of presentation and oral communication on the assignments completed in "Planning Project I (AP6171)".

COURSE EVALUATION

The viva-voce examination will be conducted at the end of the semester by the same Board of Jury constituted for "Planning Project I (AP6171)".

Open Elective Course offered for Students of Other Departments (1st Sem.)

AP6161 | Climate Change and Human Settlements | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of the course is to expose students to the phenomenon of climate change and global warming, their impacts on human settlements and the risks and vulnerabilities of urban population and infrastructure to understand the multidimensional challenge and design policies and strategies to facilitate mitigation and adaptation options for the cities and regions.

COURSE OUTCOME

On successful completion of this course, the students will be able to**:**

(i) understand the issue of climate change and global warming and their impacts on urban population, infrastructure and natural resources;

(ii) analyse the cross sectoral linkages in urban settlements that influence climate change and the mitigation and adaptation options;

(iii) Design policies and strategies to ensure appropriate mitigation and adaptation actions to address climate change and global warming.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Understanding Climate Change	6
2	Climate Change: Mitigation and Adaptation Linkages	8
3	Use of Scenarios for Climate Change Adaptation	6
4	Climate Change and Coastal Settlements	6
5	Planning for Green Infrastructure	5
6	Climate Change Mitigation and Adaptation in India	3
7	Funding Provisions to support Adaptation	2
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Understanding Climate Change 6 periods

1.1 Greenhouse gases, Anthropogenic causes, Carbon Cycle, Global Warming, Urban Heat Islands

1.2 International and national Efforts, UNFCC, Conference of Parties, Kyoto Protocol, IPCC, Intended Nationally Determined Contributions (INDC), Global Environment Facility (GFC), Clean Development Mechanism

1.3 Role of Human Settlements in climate change, Contribution to GHGs, Sectoral contributions, Sensitivity and Vulnerability of different sectors

Module 2 Climate Change: Mitigation and Adaptation Linkages 8 periods

2.1 Mitigation and adaptation strategies and linkages, Low Carbon Settlements

2.2 Mitigation and adaptation options in cities of developed and developing Nations, Principles for planning of mitigation and adaptation

2.3 Urban form and climate change.

Module 3 Use of Scenarios for Climate Change Adaptation 6 periods

3.1 Use of future scenarios

3.2 Climate change and socio-economic scenarios

3.3 Barriers to use of scenarios and appropriate interventions.

Module 4 Climate Change and Coastal Settlements 6 periods

4.1 Climate change and human settlements in low elevation coastal zones

4.2 Estimating population and human settlement patterns in low elevation coastal zones

4.3 Adaptation to rising sea levels and consequences.

Module 5 Planning for Green Infrastructure 5 periods

5.1 Role of green infrastructure in adapting climate change

5.2 Quantification of environmental functions of green infrastructure

5.3 Climate adaptation strategies and programmes of green infrastructure.

Module 6 Climate Change Mitigation and Adaptation in India 3 periods

6.1 India's urban transformation and climate change risk exposure

6.2 National Action Plan on Climate Change, Sustainable Habitat Mission, Gaps

6.3 Mitigation and Adaptation Agenda for Indian Cities

Module 7 Funding Provisions to support Adaptation 2 periods

7.1 Funding for adaptation under UNFCC

7.2 Role of Official Development Assistance (ODA) in funding adaptation

7.3 Access to adaptation finance by urban stakeholders

REFERENCE BOOKS

1. Climate Change- Causes, Effects and Solutions, Hardy T John
2. Climate Change- Observed Impacts on Planet Earth, Letcher M Trevor
3. Adapting Cities to Climate Change: Understanding and Addressing the Development Challenges, J. Bicknell, D. Dodman and D. Satterthwaite
4. Planning for Climate Change: Strategies for Mitigation and Adaptation for Spatial Planners, S. Davoudi, J. Crawford and A. Mehmood
5. IPCC Fourth Assessment Report, Summary for Policy Makers.

First Year Second Semester (2nd Sem.)

AP6201 | Metropolitan and Regional Planning | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to assist the students to study the growth of metropolitan and mega cities and their relationship with their respective regions; regional development dynamics, structure, policies and programmes and spatial planning approaches for their planned development.

COURSE OUTCOME

On successful completion of this course, the students will be able to:—

(iv) understand the urbanisation phenomena, its context, potential, scope, limitation and challenges;

(v) understand the metropolitan growth, its issues, problems and constraints;

(vi) understand the urban informal sector, its issues, problems and constraints;

(vii) understand concepts and typology of regions and regional dynamics, theoretical basis for various concepts and analytical tools borrowed from social science and regional science and learn the practice of regional planning;

(viii) understand the urban development problems, policies and various regional planning and development approaches including that of metropolitan region.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Urbanisation phenomena	6
2	Metropolitan Growth	6
3	Urban informal growth and its planning	8
4	Regional Planning	10
5	Planning and Management for Metropolitan Region	6
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Urbanisation phenomena 6 periods

1.1 Urbanisation profile of the world, developed and developing countries;

1.2 Growth of cities, complexity and its impact on national development, cities as engines of growth, cities as ecosystems, resources in cities.

Module 2 Metropolitan Growth 6 periods

2.1 Past and future of metropolitan growth and related characteristics problems and issues in the world, developed and developing countries. Primary and polarisation as process of metropolitan growth;

2.2 National settlement policies. Structure of a metropolitan area, socio-economic and political issues in metropolitan growth. Unintended growth in metropolitan areas, multi-nuclei development and functional inter-linkages;

2.3 City – Region Linkages: City, fringe and the periphery - physical and functional linkages, peri-urban development, Urban Sprawl. Dynapolis, Megalopolis and Ecumenopolis; concepts and their applicability.

Module 3 Urban informal growth and its planning 8 periods

3.1 Basic need and their provision for various target groups and informal sectors;

3.2 Concepts and causes of spontaneous growth: Regional inadequacies and the settlements systems. Identification of migratory impulses, characteristics of migrants and their significance in development, socio-economic deprivation and informal sector. Development of informal sector concept;

3.3 Consequences of spontaneous growth: study of major aspects-spontaneous living and working, their characteristics and function in urban context. Actions for improvement: Appraisal of the role of government, private and voluntary organisation;

3.4 Existing management and organisational set up, their limitations. Possible approaches such as labour recognition and integration into organised market structure, resource generation. Provisions of buildings and equipment, infrastructure development, appropriate regulatory control and standards for basic needs, flexibility in bye-laws and organisation through self-help and community development. Policies for assistance and implications for promotion;

3.5 Dimensions of urban poverty. Magnitude of the problems and major characteristics of spontaneous growth;

3.6 Planning and development of urban settlement in terms of employment, shelter services and management for the informal sector at all levels.

Module 4 Regional Planning 10 periods

4.1 Definition, scope and content of Regional Planning. Need for Regional Planning and basis for Regional Planning. Concepts of spatial organisation and region. Types of region. Methods and purpose of regionalisation, Delineation of regions;

4.2 Concept of regional growth processes : (Some approaches of Rostow, Hirschman, Myrdal, Concept of core and periphery.), Concept of growth centres, growth pole, service centre and agropolitan district concept and their approaches in developed and developing countries;

4.3 Spatial growth process, settlement structure and distribution. Theories - Christaller, Losch - Rank size rule, primacy spatial innovation diffusion, etc.;

4.4 Introduction to regional/economic industrial location theories -- Weber, Isard, Alonso., Changing trends in location analysis., Methods of analysing regional industrial structure - regional cycle and multiplier analysis and economic base analysis, co-efficient of localisation, shift share analysis, Spatial theory and market areas inter-regional and regional accounting methods including preliminaries of input output analysis;

4.5 Regional imbalances and inequalities, Policies - its impact on regional imbalances and planning imperatives, industrial location policies, agricultural development policies and structural adjustment policies;

4.6 Population growth, distribution and regional development. Population distribution and resource base. Migration, causes, flows and impacts;

4.7 Backward area development, Identification and development policies and approaches in India., Regional basis of decentralised and multi-level planning in India., Decentralised planning approaches, district planning, and block level planning., Sectoral basis of decentralised planning - a case of integrated rural energy planning in India., Decentralised resource management planning - a case of watershed management planning, with respect to concepts of common property resources, community based resource management systems, traditional knowledge and institutional systems. Institutional framework for regional planning;

4.8 Regional development models: their structures, characterization and construction.

Module 5 Planning and Management for Metropolitan Region 6 periods

5.1 Urbanisation and urban systems in developed and developing countries, spatial variation - reasons, factors and implications for planning, IDSMT and metro regional planning approaches;

5.2 Issues in metropolitan management; institution development/financing and land management. Inner city problems and approach to development. Urban redevelopment and renewal; Goals and objectives; costs and benefits, methods of plan preparation implementation, Administration, legal and fiscal framework. Alternative strategies to metropolitan growth planning, development process and issues.

REFERENCE BOOKS

1. UN HABITAT, State of the World's cities 2012/2013, 2013, Routledge for and on behalf of the United Nations Human Settlements Programme (UN-Habitat).
2. Urbanization and Development: Emerging Futures, World Cities Report 2016, 2016, United Nations Human Settlements Programme (UN-Habitat).
3. ITPI City and Metropolitan Planning and Design, 1998, ITPI, New Delhi.
4. Misra, R.P. & Misra, K., Million Cities of India Vol. 1&2 1998 Sustainable Development Foundation, New Delhi.
5. John Glasson and Tim Marshall, Regional Planning, 2007 Routledge, Oxford shire.
6. Peter Hall and Mark Tewdwr-John, Urban and Regional Planning 2008 Routledge, New York

AP6202 | Environmental Planning | 2 credits

Course Duration	Contact periods	Full Marks
13 weeks	2 lectures per week	50

COURSE OBJECTIVE

The objective of this course is to provide understanding of environmental modification beyond livability for biotic community including human due to resource utilization and developmental activities and explore the ways of restoring environmental qualities of planet through sustainable developmental activities and resource utilization.

COURSE OUTCOME

On successful completion of this course, the students will**:**

(i) be able to Understand cause of environmental degradation,
(ii) be Aware of changing global vulnerability to environmental hazards and climate change,
(iii) have a detail understanding of various components leading towards degradation of healthy living condition of biotic community,
(iv) analyse local central and global management strategies for revival of environmental condition.
(v) identify steps of sustainable development, and
(vi) recognize tools and techniques for environmental planning and design.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to environment and environmental planning Issues	2
2	Environmental design: Historical evolution, contemporary theories and design programming	4
3	Environment and human settlement imperatives	4
4	Environmental resources	4
5	Environmental factors in design	4
6	Energy and human settlement	2
7	Environmental impact Assessment	4
	Term Paper/ Teachers' Assessment	2

DETAIL COURSE CONTENT

Module 1 Introduction to environment and environmental planning issues 2 periods

Introduction to Environment and issues related to planning – Environmental Planning – Planning Process – Pollution: Science and technology limitation of technological concept – Criterion of economic regional opportunities - Consensus Planning.

Module 2 Environmental design: Historical evolution, contemporary theories and design programming 4 periods

Cultural and climatic factors – Water and sanitation

Module 3 Environment and human settlement imperatives 4 periods

Cultural and climatic factors – Environmental pollution and human health – Water and sanitation - Water pollution.

Module 4 Environmental resources 4 periods

Land and water ecosystem and its degradation and possibilities of revival – Role of forestry and sustainable utilization.

Module 5 Environmental factors in design 4 periods

Identification of environmental constrain and opportunities, prediction of environmental impact – Urban climate and its relevance in planning and design, Scales of decision making

Module 6 Energy and human settlement 2 periods

Role of energy in planning – Alternative technologies.

Module 7 Environmental impact Assessment 4 periods

Approach methodologies and management

REFERENCE BOOKS

1. Man and its environment, Ed. M. A. Ward.
2. Environmental Design by Richard P. Dober.
3. State of environment Asia and Pacific, Volume 2, UN Publication
4. Fundamental Concepts of Atmospheric Pollution- A T Rossano in Man and his environment Vol 1
5. Noise Pollution control act by H.G. Balakrishna in legal control of environmental pollution, Ed. Anil Agarwal.
6. Environmental Management: Rohrlich
7. The economics of environmental management by Lowe and Lewis.

AP6203 | Planning Legislation and Professional Practice | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The course introduces the students to the objectives, provisions, implementations and implications of planning legislations in general, and in Indian context in particular.

COURSE OUTCOME

On successful completion of this course, the students will have understanding on**:**

(i) Significance and scope of planning legislations in general and, their constitutional basis in India in particular
(ii) Evolution of planning legislation in U.K. (pioneering state) and in India
(iii) Significant constitutional reforms and important acts related to urban and regional planning
(iv) Roles and responsibilities of planning professions and professional organizations.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction	3
2	Historical perspective	6
3	Constitutional amendment	3
4	Existing legislative framework	3
5	Planning regulations	3
6	Planning acts	12
7	Professional practice	6
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction **3 periods**

1.1 Significance Scope and objectives of planning legislation.

1.2 Constitutional framework of demographic republic: fundamental rights, duties and directive principles.

1.3 Constitutional basis and its provisions relating to land, its development and use, concept of Eminent domain, police power and taxation power as basis for legislation.

Module 2 Historical perspective **6 periods**

2.1 Evolution of U.K. planning laws, concept of structure plan, local plan and action plan under English laws.

2.2 Evolution of planning legislation in India.

Module 3 Constitutional amendment **3 periods**

3.1 73rd and 74th amendments of Constitution – background, objective and impact.

3.2 Provisions in Constitution Amendment Acts – urban and regional planning including town planning, metropolitan planning and district planning.

Module 4 Existing legislative framework 3 periods

4.1 Contemporary legislation and its institutional framework and its execution process – An overview of legal tools connected with urban planning development – Objectives, contents and procedure for preparation and implementation of Regional plans, Development plans, Town planning schemes, Area plans etc.

4.2 Town and Country Planning Organization, Improvement Trust and Development Authorities etc.

Module 5 Planning regulations 3 periods

5.1 Building byelaws.

5.2 Development control and zoning regulations.

Module 6 Planning acts 12 periods

Topics may include, but not limited to, the background, objective, salient features, provisions and planning implications of the following acts related to:

6.1 Urban land acquisition and land regulation (ceiling) act(s).

6.2 Slum development.

6.3 Rent control.

6.4 Conservation of natural resources including mining and forestry acts.

6.5 Conservation of ancient monuments, sites and urban art.

6.6 Environmental protection.

Module 7 Professional practice 6 periods

7.1 Aims and objectives of professional institutes, sister bodies.

7.2 Professional role and responsibilities of planners, professional ethics, code of conduct and scale of professional charges.

REFERENCE BOOKS

1. Subhas C. Kashyap "Our Constitution", 4th Ed., 2005, National Book Trust, India.
2. "Constitutional Amendments 73rd and 74th of 1992", 1993, Dept. Of Publications, Govt. Of India.
3. Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2015, TCPO Publication.

AP6204 | Housing and urban Renewal | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to introduce a graduate student of Architecture and/or Civil Engineering to the processes of housing and urban renewal.

COURSE OUTCOME

On successful completion of this course, the students will:

(i) be able to conceive Housing as a process under the broad field of Urban and Regional Planning,
(ii) have a fair idea regarding the elements and principles of Housing,
(iii) be able to prepare critical analysis/evaluation of Housing schemes,
(iv) be able to design Housing based on knowledge about spatial organization and Infrastructure Planning.
(v) have a fair idea about the process Urban Renewal.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Concepts and Definitions	6
2	Social and Economic Dimensions	6
3	Housing and the City	6
4	Planning for Neighbourhood	9
5	Urban Renewal	9
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Concepts and Definitions 6 periods

1.1 Population and Housing – Global and Indian Scenario, Shelter as a basic requirement, Determinants of housing form, Census of India definitions.

1.2 Introduction to policies, housing need, demand and supply, dilapidation, structural conditions, materials of constructions, housing age, occupancy rate, crowding, housing shortage, income and affordability, poverty and slums, houseless population.

1.3 Various housing typologies, Public health issues related to housing, Various theories of housing, Concept of green housing, Green rating of housing projects.

Module 2 Social and Economic Dimensions 6 periods

2.1 Housing as social security, role of housing in development of family and community well-being, status and prestige related to housing, safety, crime and insecurity, deprivation and social vulnerability, gender issues, housing and the elderly.

2.2 Contribution of housing to micro and macro economy, contribution to national wealth and GDP, housing taxation, national budgets, Introduction to housing finance.

Module 3 Housing and the City 6 periods

3.1 Understanding housing as an important land use component of city plan / master plan, considerations for carrying out city level housing studies, projections, land use provisions.

3.2 Suitability of land for housing, housing stress identification, projecting housing requirements, calculating housing shortages, housing allocation.

Module 4 Planning for Neighbourhood 9 periods

5.1 Approaches to neighbourhood living in traditional and contemporary societies

5.2 Elements of neighbourhood structure

5.3 Planning and design criteria for modern neighbourhoods

5.4 Housing standards

5.5 Residential density and development control.

Module 5 Urban Renewal 9 periods

Urban Renewal, Regeneration, Rehabilitation, Revitalization, Reconstruction and Redevelopment – concepts, purpose, interventions, processes, approaches, methods and tools.

REFERENCE BOOKS

1. Misra, G K and Rao, P S N. (2000). Housing legislation in India: Policies and performance, New Delhi: Kanishka Publishers.
2. Ryan-Collins, J., Macfarlane, L. and Lloyd, T. (2017). Rethinking the Economics of Land and Housing, London: Zed Books Ltd.
3. Van Bortel, G., Gruis ,V., Nieuwenhuijzen, J. and Pluijmers, B. (eds.) (2018). Affordable Housing Governance and Finance, Routledge.

AP6221 | Urban Design and Conservation | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to expose students to a range of historical precedents, theoretical ideas, case studies, and field experiences relevant to the study and practice of urban design and conservation, to conceptualize and deliver urban design and conservation solutions within its larger social, cultural, political, technological and aesthetic context.

COURSE OUTCOME

On successful completion of the course, the students should be able to:

(i) facilitate the development of a rigorous intellectual framework for design and research on cities, and an awareness of the student's emerging personal theoretical position and approach to urban design and conservation.

(ii) use their skills in the representation, analysis, and interpretation of urban places and spaces, in both textual and graphic modes, using both analogue and digital techniques.

(iii) develop critical and analytical thinking along with the ability to communicate this thinking (writing, oral and graphic presentation, other media)

(iv) generate, coordinate, share, and debate ideas and proposals in collaboration with others.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Urban Design – Theories and Practices	8
2	Urban Design Methodologies	6
3	Urban Design – A tool for planning	4
4	Conservation and Change in a City	3
5	Conservation Planning: Historical Overview	5
6	Conservation Planning in India	4
7	Planning of Heritage Zones	3
8	Legal and Financing Tools	3
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Urban Design – Theories and Practices 8 periods

1.1 Introduction to Urban Design: A brief history of urban development.

1.2 Vocabulary of Urban Design Elements: Space, Place, Urban Form, Urban Structure, Morphology, Grain, Texture, Scale, Mass, etc., Lynch's 5 elements for Urban Mapping

1.3 Types of Urban Design Projects: Greenfield, Brownfield – Definition, Typology, Example, Project drivers (Govt. Bodies, PPP, Pvt. Developers, Community etc.)

Module 2 Urban Design Methodologies 6 periods

2.1 Urban Design: The process – Problem Identification / Project Ideation, Data Collection, Analysis, Synthesis, Decision, Public Participation

2.2 Survey Techniques: Historical Background Study, Townscape Study, Perceptual Structure Study, Permeability Study: Privacy & Accessibility, Visual Survey, Transport Impact Analysis, Behaviour observation,

2.3 Analysis Techniques: Trend, Forecast & Scenario, Constraints & Possibilities, Sieve Mapping, SWOT Analysis

Module 3 Urban Design – A tool for planning 4 periods

3.1 Role of Urban Designer : Regional Level – Zonal Level – District Level – Cluster Level – Site Level (Top – down and Bottom – up approaches)

3.2 Development of Guidelines on Specific Major Urban Design Issues (e.g., Massing and Intensity in Urban Fringe Areas and Rural Areas, Development Height Profile, Waterfront Sites, Public Realm, Streetscape, Heritage, View Corridors, Stilted structures, eco-sensitive zones) in Planning documents

3.3 Urban Design and People : Community Participation, Raising Awareness;

Module 4 Conservation and Change in a City 3 periods

4.1 Role of Conservation in Urban Development, Values of Cultural Properties: Threats and Opportunities

4.2 City Dynamics and Conservation, City Specific Approaches to Conservation

Module 5 Conservation Planning: Historical Overview 5 periods

5.1 Civil Works in Nineteenth Century and Origin of Conservation Movement

5.2 Patrick Geddes and Conservative Surgery

5.3 Post War Reconstruction and Urban Conservation

5.4 Integrated Conservation and Development and Sustainability Agenda in 1990s.

Module 6 Conservation Planning in India 4 periods

6.1 Practice of Conservation and Archaeological Survey of India, Difference between

6.2 Indian and European Approaches to Conservation

6.3 Indian Identity in Conservation: Collage of Time and Collage of Cultures

Module 7 Planning of Heritage Zones 3 periods

7.1 Issues Confronting Heritage Zones in Indian Cities

7.2 Case Studies of Heritage Zone Planning and Emerging Challenges

Module 8 Legal and Financing Tools 3 periods

8.1 Grading in Conservation

8.2 AMASR Act and Development Control Regulations

8.3 Financial and Other Incentives for Conservation

REFERENCE BOOKS

1. Image of City, Kevin Lynch
2. Theory of Good City Form, Kevin Lynch
3. The Concise Townscape, Gordon Cullen
4. A new theory of Urban Design- Christopher Alexander
5. Urban Design: A typology of procedure and product - Jon Lang
6. The Art of building cities - Camillo Sitte
7. The Urban Design Handbook: Techniques and Working Methods- Ray Grindoz
8. Place Marking: An Urban Design Methodology - Routledge Research in Planning and Urban Design
9. Urban Design Thinking: A conceptual toolkit - Kim Dovey
10. Planning for Conservation: Roger Cain, Mansell, London
11. The Future of the Past, Attitudes to Conservation, Jane Fawcett, Thames and Hudson, London
12. Asian Drama, Gunar Myrdal, Pantheon, New York

13. Guidelines for Conservation A Technical Manual, Bernard Feilden, INTACH, New Delhi
14. Humayun's Tomb Conservation, Agan Khan Trust for Conservation, ASI and TATA Trusts, Mapin, Ahmedabad

AP6222 | Rural Development and Planning | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to understand socio-economic, physical and institutional framework for rural development and planning.

COURSE OUTCOME

On successful completion of this course, the students will have:

(i) a fair idea regarding the elements and principles of planning for rural development,
(ii) a fair idea regarding the socio-economic aspects of rural development
(iii) a fair idea of the infrastructure and institutional framework for rural development, and
(iv) knowledge to prepare plan for development of village settlements.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to rural development and planning	3
2	Rural system and development	6
3	Rural economic development and growth	6
4	Social and environmental aspects of rural development	6
5	Rural infrastructure	6
6	Rural institutional framework and policies	6
7	Rural-urban integration	3
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction to rural development and planning 3 periods

1.1 Introduction to rural development – concepts, historical background, Indian perspective, global scenario

1.2 Rural planning methodology.

Module 2 Rural system and development 6 periods

2.1 Rural population

2.2 Rural activity analysis

2.3 Indicators of rural development

2.4 District level planning

2.5 Village settlement studies.

Module 3 Rural economic development and growth 6 periods

3.1 Rural growth pattern

3.2 Economic theories, demand - supply, investment, production function in agriculture/ rural development

3.3 Rural land economics

3.4 Rural industrialization.

Module 4 Social and environmental aspects of rural development 6 periods

4.1 Rural poverty alleviation

4.2 Concept of community development and cooperative movement

4.3 Environmental issues in rural development.

Module 5 Rural infrastructure 6 periods

5.1 Rural physical infrastructure (road, irrigation, electrification)

5.2 Rural social infrastructure (education, health, socio-cultural facilities)

5.3 Rural economic infrastructure (rural credit, rural marketing, banking facilities)

Module 6 Rural institutional framework and policies 6 periods

6.1 Institutions for rural and community development: Global perspective

6.2 Local self-governments, district planning office, state planning boards

6.3 Rural development schemes and programs

6.4 Plan financing, monitoring and evaluation of rural development schemes.

Module 7 Rural-urban integration 3 periods

7.1 Planned rural-urban development

7.2 Regional planning approach to rural development.

REFERENCE BOOKS

1. Planning and Management for Rural Development / S. P. Singh
2. Integrated Rural Development in Asia / H. Ramchandran.
3. Rural Development in India / K. R. Gupta.

AP6271 | Planning Project II | 8 credits

Course Duration	Contact periods	Full Marks
13 weeks	12 studio classes per week	400

COURSE OBJECTIVE

This studio course will enable the students with developing the skill of preparation of development plan of an urban area.

COURSE OUTCOME

On successful completion of this course, the students will be able to**:**

(i) understand relevant norms and standards through extensive literature search;

(ii) prepare a comprehensive list of required data and identify probable sources before making a field visit;

(iii) translate learning from the core and elective subjects to the studio exercise;

(iv) analyse the data collected and come out with proposals and recommendations for planned development of the city;

(v) document the whole exercise in the form of a technical report.

COURSE EVALUATION

Evaluation for the course will consist of **two Interim Reviews of 150 marks each** and **100 marks for End Semester presentation** of Drawing and Report, by a Board of Jury of at least three Examiners consisting of the Course Teacher/s, one External Examiner and one Internal Examiner nominated by the Departmental Postgraduate Committee (DPGC).

DETAIL COURSE CONTENT

Initial study involves understanding of the exercise through theories, study of similar case studies, awareness of relevant norms and standards through extensive literature search. Students are required to prepare a comprehensive list of required data and identify probable sources before making a field visit to the case study town/city. Students are encouraged to translate learning from the core and elective subjects to the studio exercise. The introduction of GIS in the studio enables them to apply it in the studio exercise. Students are expected to analyse the data collected and come out with proposals and recommendations for planned development of the city. The entire exercise is also documented in the form of a technical report.

The content of Planning Project II may include but not limited to the following topics on which the students are expected to work hands on, in individual capacity or in a team, including occasional field trip to various organizations, libraries, offices and various urban and rural areas within India or abroad, for the purpose of collection/procurement of data including photographs, imageries, maps, reports, statistical and population handbooks and for the purpose of conducting study and primary survey, as may be instructed by the subject teacher from time to time:

Literature survey on planning case studies and related fields.

Preparation of base maps and generation of data for urban/rural and regional planning.

Preparation of components of development plans and carrying out study/survey of selected Urban/Rural centres according to Town and Country Planning acts as may be applicable – having sectoral plan components that may include – land use, traffic and transportation, physical and social infrastructure, networks and services, environment, commercial and industrial development, coastal and hill area development, settlement on eco-sensitive areas, housing, slum improvement, energy issues, any other topic relevant to the subject.

After preparation of Development Plan of the city different component areas (CBD, Neighbourhoods with different characteristics, special areas within the city viz. identified as important for conservation, urban renewal etc.) may be assigned to different groups of students. The groups need to prepare Area to develop awareness of design issues related to planning, - to understand the implication of socio-economic and demographic characteristics of the population on the physical plan. Issues related to provision of infrastructure

services, it's costing, financing and implementation strategies especially defining the role of various agencies in realising the plan need to be addressed based on participatory approach.

Students may require to visit urban/rural areas in India or abroad for the purpose of carrying out planning study/survey for a duration of not exceeding two weeks during which all other classes will be suspended.

REFERENCE BOOKS

1. Bryman, Alan. Social Research Methods 2008 Oxford University Press.
2. Finlay, B. Statistical Methods for the Social Sciences, 2009 Pearson Publisher, University of Florida.

AP6291 | Planning Viva-Voce II | 2 credits

Contact periods	Full Marks
End Semester Examination only	50

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of presentation and oral communication on the assignments completed in "Planning Project II (AP6271)".

COURSE OUTCOME

On successful completion of this course, the students will be able to acquire the skill of presentation and oral communication on the assignments completed in "Planning Project II (AP6271)".

COURSE EVALUATION

The viva-voce examination will be conducted at the end of the semester by the same Board of Jury constituted for "Planning Project II (AP6271)".

Open Elective Course offered for Students of Other Departments (2nd Sem.)

AP6261 | Smart City Planning | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of the course is to expose students to the attributes of smart cities, its components and approaches adopted in global and Indian context, to understand the constraints and opportunities and enable them to design policies and strategies for sustainable transformation of cities.

COURSE OUTCOME

On successful completion of this course, the students will be able to:

(i) understand the concepts and attributes of smart cities in global and Indian context,

(ii) analyse the weaknesses and opportunities of prevailing approaches unfolding in transformation of the cities from conventional to smart,

(iii) design policies and strategies to ensure pathways of transition from smart to wise to address emerging challenges in urban sector.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Understanding smart cities	5
2	Key components and sub-components	9
3	Global experience of smart cities	6
4	Smart city development in India	9
5	Governance and citizen participation	3
6	Funding of smart cities	2
7	Smart to wise transformation	2
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Understanding smart cities **5 periods**

1.1 Conventional vs. Smart City

1.2 Various Definitions of smart cities in the context of developed and developing nations

1.3 Drivers and Agencies of smart cities

Module 2 Key components and sub-components **9 periods**

2.1 Smart Living

2.2 Smart Mobility

2.3 Smart Energy

2.4 Smart Environment

2.5 Smart Economy

2.6 Smart Infrastructure

2.7 Smart Governance

2.8 Smart Citizens

Module 3 Global experience of smart cities **6 periods**

3.1 Top-down and technology-centric approaches.

3.2 Bottom -up and citizen enabling approaches.

3.3 Standard and performance bench marks, practice codes.

Module 4 Smart city development in India **9 periods**

4.1 Smart Cities Mission Guidelines

4.2 Smart Solutions

4.3 City selection process

4.4 Smart city planning

4.5 Smart city projects: Pan city solutions, Area based development

Module 5 Governance and citizen participation **3 periods**

5.1 Multi-stakeholder participation

5.2 Special Purpose Agencies

5.3 Contradictions in governance

Module 6 Funding of smart cities **2 periods**

Innovative financing and land management tools.

Module 7 Smart to wise transformation **2 periods**

7.1 Constraints of technology centric approach

7.2 Advantages of citizen enabling approach

7.3 Attributes of paradigm shift from smart to wise

REFERENCE BOOKS

1. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia, A.M. Townsend.
2. Cities and Creative Class, Richard Florida.
3. Intelligent Cities: Innovation, Knowledge Systems and Digital Spaces, N. Komninos.
4. Splintering Urbanism: Networked Infrastructure, Technological Mobilities and the Urban Condition, S. Graham and S. Marvin.
5. Smart Cities Mission, MoUD, Govt. of India (http;//smartcities.gov.in).

Second Year First Semester (3rd Sem.)

AP7101 | Urban Governance and Finance | 3 credits

Course Duration	Contact periods	Full Marks
13 weeks	3 lectures per week	100

COURSE OBJECTIVE

The objective of this course is to assist the students to acquire knowledge in the domain of governance and finance of the emerging characteristics and trend of urbanisation and urban development in the global arena.

COURSE OUTCOME

On successful completion of this course, the students will be able to:

(i) understand the knowledge in the domain of governance and finance;
(ii) understand concepts, typology and theoretical basis for various concepts and analytical tools and learn the practice of urban governance and finance;
(iii) to identify potential, scope and limitation of governance and finance of urban development; and
(iv) contribute in guiding the current and future process of governance and finance of urbanisation.

COURSE EVALUATION

(a) Internal Assessment: 50% [Mid-Semester Examination - 30%; Teacher's Assessment: 20%, having the components class tests, quizzes, assignments, viva-voce, presentations etc. as per teachers' discretion].

(b) End-Semester Examination: 50%.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	LECTURE PERIODS
1	Introduction to Urban Governance	6
2	Governance and Urbanization	6
3	Urban Governance in Post 74th Amendment Scenario	6
4	Municipal Finance	6
5	Resources Based on Achievement of Urban Reforms and indices	6
6	Additional Funding Sources	3
7	Institutional Capacity Enhancement	3
	Term Paper/ Teachers' Assessment	3

DETAIL COURSE CONTENT

Module 1 Introduction to Urban Governance 6 periods.

1.1 Meaning of governance and government, administration and management; Basic Concepts of Governance

1.2 Governance and Urban Governance, Definitions, Principles and practice regarding urban governance

1.3 Evolution and Processes, Determinants and indicators of good governance; Citizens charter and other instruments

1.4 Decision making processes

Module 2 Governance and Urbanization 6 periods.

2.1 Processes of urbanization, developmental conflicts, resource constraints, systems deficiencies

2.2 Urban poverty and exclusion from development process, Social diversities

2.3 Sustainable development, Defects in planning approaches, Need for openness and transparency, Governance and Change, Impact of globalization and economic reforms

2.4 Multiplicity of organizations and authorities, New forms of Governance; Politics and progress of decentralization, People's participation, collaborative management; Local governance.

2.5 Total Quality Management, Millennium Development Goals and Urban Governance.

Module 3 Urban Governance in Post 74th Amendment Scenario 6 periods.

3.1 74th Constitution Amendment Act including - XII schedule; decentralization of powers and functions, Local and participatory planning,

3.2 Planning, governance and spatial strategy; Best practices of planning, E Governance; Urban Information System;

Module 4 Municipal Finance 6 periods.

4.1 Nature and Composition of Income and expenditure, Limitations and Need for Revenue Enhancements, Expenditure Control Methods and Mechanisms,

4.2 Methods of urban finance - financial perspective of urban development, Municipal fiscal administration

4.3 Local planning and budgeting, Budgetary Allocation from Central and State Governments for Urban Development,

4.4 Assistance from Foreign Donors and Multilateral Agencies, Non-traditional Sources of Funding, Market Access, Pool Finance, Pre-requisite Conditions for Accessing Non-Traditional Funds

Module 5 Resources Based on Achievement of Urban Reforms and indices 6 periods.

5.1 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

5.2 Financial operating plan, city corporate plan

5.3 Development of urban indicators; Infrastructure pricing and financing, financing mechanisms in addition to tax and grants;

Module 6 Additional Funding Sources 3 periods.

6.1 Types of Partnership Approaches, Privatization of Civic Services, Public Private Partnership Mechanisms, Types of Contracts and Ownerships, BOT, BOOT, BOLT etc.

6.2 Impact fee, subsidies, Emerging Cost, Effective Technology Interventions, User Charged Projects.

Module 7 Institutional Capacity Enhancement 3 periods.

7.1 Better Finance Management, Management Process – Accounting and Budgeting,

7.2 Asset Management, Receivables Management, Cost centre approach computerization, Management Information System.

REFERENCE BOOKS

1. Rao, Govinda, 2002, "Development, Poverty and Fiscal Policy – Decentralization of Institutions", Oxford University Press, New York.
2. Harper, Malcom, 2003, "Practical Micro-Finance – A Training Guide for South Asia", Vistaar Publications, New Delhi.
3. Sonalde, B. Doshi (et al), 2010, "Human Development in India – Challenges for a Society in Transition", Oxford University Press, New York.
4. Guha, Barudeb (et al), 2007, "linking formal and informal Economy – Concepts and Policies", Oxford University press, New York.
5. Pandey, I.M, Financial Management, Vikas, New Delhi
6. Tyagi, B.P, 1997, Public Finance, Jai Prakash Nath, Meerut
7. Thavaraj, M.J.K, 1996, Financial Administration in India, S. Chand & Sons, Delhi
8. Khan, M.Y, and Jain, P.K, 1982, Financial Management, Tata McGraw Hill, New Delhi
9. Brotchie, Batty, J. M. et al. (eds), 1995, Cities in Competition: Productive and Sustainable Cities for the 21st Century, Longman, Melbourne
10. Hall, Peter and Pfeiffer, Ulrich, 2000, Urban Future 21, E&FN Spon, New York

AP7171 | Planning Thesis - I | 6 credits

Course Duration	Contact periods	Full Marks
13 weeks	9 studio classes per week	300

COURSE OBJECTIVE

The objective of this course is to provide an opportunity to the students to prepare independent, original, innovative and practical study/work individually on special project of his/her own choice from the domain of knowledge of Urban and Regional Planning in general inculcated through the teachings offered in the previous semesters of the programme and related to current concerns in urban studies and planning.

COURSE OUTCOME

On successful completion of this course, the students will be able to**:**

(i) synthesize previous learning and experiences and reflect on their meaning;
(ii) deepen knowledge of a specialized topic;
(iii) design and complete a significant independent project which has significance for planning or policy;
(iv) strengthen and demonstrate competence in framing questions, designing a process for answering questions and interpreting the meaning of findings;
(v) document the whole exercise in the form of a technical report to show to prospective employers or clients;
(vi) defend own views about the research/project work before the Board of Examiners.

DETAIL COURSE CONTENT

The thesis process is a multi-semester experience including a formal process of Thesis Preparation, Thesis Proposal and the Thesis. Normally the last year of a 2-year Master's Programme is devoted on project/thesis work engaged towards innovative research. This work is submitted at the end of the Fourth Semester as an original document prepared by the student known as "Master's Thesis". "Planning Thesis I" is the sessional course, the initial half of the whole endeavour, is called thesis preparation subject or another approved context that helps to structure this initial stage and is to be pursued in the Third Semester. But the concluding half, typically the bulk of data collection, analysis, and writing of the thesis is to be pursued in the Fourth Semester in the studio course "Planning Thesis II (AP7271)".

A broad range of studies can qualify as a thesis. Some are academic research projects (advancement of theories); others are closer to being professional reports on planning practice, experimentation and policy questions. Still others may be design proposals or documented formal models. The thesis must have an analytical dimension that addresses issues of implementation, design, public policy or planning practice.

This course is initiated as students make their own choices of subjects/topics from the domain of knowledge of Urban and Regional Planning in general that have been inculcated through the teachings offered in previous semesters of the programme and related to current concerns in urban studies and planning to prepare independent, original, innovative and practical study/work individually. The key to a good thesis topic is one that is specific and one that has a clear methodology. A good topic is one on which there is a reasonable amount of data or information—but not an overwhelming amount.

At the beginning of the Third Semester each student will present their choices (more than one and preferably three in number in the form of its meanings and prospective objectives, methodology, data requirement and its probable sources) in front of the faculty of the Department. The Departmental Post Graduate Committee (DPGC) will allot a supervisor from the members of faculty of the Department to every student. The subject/topic for special study should however, offer scope to adopt a fresh approach in formulating a concept of developing a methodology effective and useful as sequentially stated below:

(i) To organise and carry out extensive literature search in explorative/normative way;
(ii) To realise what the chosen special project means in terms of its do-ability;
(iii) To make inferences from the Literature Survey and data collected from secondary sources;
(iv) To assess the potentials and limitations of directions of research accomplished till date;
(v) To establish the need of research on the chosen special project;

(vi) To make hypothesis of research stating what a student expects to find upon the conclusion of the thesis research, conveying some prior thinking about possible outcomes;

(vii) To determine goal, objectives and methodology of research that is either qualitative or quantitative or design based;

(viii) To formulate research question;

(ix) To determine theories and techniques in support of the hypothesis prepared;

(x) To prepare the plan of analysis and technique of analysis;

(xi) To prepare a comprehensive list of required data and identify its probable sources (for example, interviews, library research, surveys, field observations) before making a field visit;

(xii) To develop an understanding of possible impact of the thesis, in a professional or conceptual sense;

(xiii) To develop a theoretical framing that permits the student to understand how their work is situated within larger inquiries and understandings of urban studies and planning;

(xiv) To prepare a synopsis of the research/project;

(xv) To document the whole exercise in the form of a technical report;

(xvi) To present the research/project work in the form of seminar;

(xvii) To defend own views about the research/project work before the Board of Examiners.

Works related to the Planning Thesis are performed by the students and need regular interaction (at least once a week) with the Supervisor. The corresponding portions of exercises at each stage of the Planning Thesis work are documented in the form of technical reports that after being approved duly by the respective Supervisor/s are evaluated and the Sessional marks shall be based on the performance of the student during the consecutive Interim Reviews and the End Semester Review spaced evenly throughout the semester.

COURSE EVALUATION

There are **two interim reviews** and **one End Semester Review** of **100 marks each**. The Interim Reviews are conducted by a Board of at least three examiners consisting of the respective Supervisor/s, the Thesis Coordinator as one Internal Examiner common for all candidates, and one External Examiner nominated by the DPGC who will be the common External Examiner for all candidates and who will further continue to act as one of the two external examiners in the End Semester Review and the "Planning Thesis Viva Voce I (AP7191)" to be conducted at the end of the Semester.

At the end of the Third Semester the student should submit a Technical Report in the form of a "Progress Report" duly supported by copious References acknowledging the sources of any existing literature to avoid plagiarism, sketches, graphs, statistical data, details of survey if any, detailed account of experimental analytical procedures adopted and duly approved by the respective Supervisor/s.

The Progress Report should be completed in following respects:

1. Title of the Planning Thesis topic;
2. Abstract of research / study;
3. Name, signature and consent of the supervisor/s;
4. Goal, Objectives, scope and limitation;
5. Methodology of research;
6. Identified domain of Literature Survey;
7. Formulated research question;
8. Formulated research hypotheses;
9. Identified list and probable sources of data to be collected;
10. Inferences from the Literature Survey and data collected from secondary sources.

The student should present the documented whole exercise through a seminar in the End Semester Review before a Board of at least Four Examiners consisting of the respective Supervisor/s, the Thesis Coordinator as one Internal Examiner common for all candidates, and two External Examiners nominated by the DPGC, one of whom is the common External Examiner for all candidates in the Interim Reviews.

The evaluations of the Interim Reviews and the End Semester Review are done with marks given by all the members of the Board having equal weightages.

REFERENCE BOOKS

1. Wang, Dr Xinhao, Hofe, Dr Rainer vom. 2007. Research Methods in Urban and Regional Planning, Tsinghua University Press, Beijing and Springer-Verlag GmbH Berlin Heidelberg.
2. Bryman, Alan Social Research Methods 2008 Oxford University Press.
3. Finlay, B. Statistical Methods for the Social Sciences, 2009 Pearson Publisher, University of Florida.
4. Jha, A.S. (2014). Social Research Methods, (1st Ed.). New Delhi: McGraw Hill.
5. Kothari, C.R., and Garg, G. (2014). *Research Methodology: Methods and Techniques* (3rd Ed.). Delhi: New Age International Publishers.
6. Remler, D.K., & Gregg, G.R. (2012). Research Methods in Practice (3rd Ed.). Sage Publications, Inc.
7. Xiao, Y.; Watson, M. Guidance on Conducting a Systematic Literature Review. J. Plan. Educ. Res. 2017.
8. Levy, Y.; Ellis, T.J. A Systems Approach to Conduct an Effective Literature Review in Support of Information Systems Research. Informing Sci. J. 2006, 9, 182–212.
9. Riege, M., and Schubert H., Eds. 2005. Social Space Analysis: Basics-Methods-Practice. 2nd ed. Wiesbaden: VS Publisher for Social Science.
10. McNiff, J., and J. Whitehead. (2006). All You Need to Know about Action Research. London: SAGE.
11. Organisation for Economic Co-operation and Development. (2002). The Measurement of Scientific and Technological Activities: Proposed Standard Practice for Surveys on Research and Experimental Development. Frascati Manual. Paris: OECD.
12. Ruane, J.M. (2004). Essentials of Research Methods: A Guide to Social Science Research. Malden, MA: Blackwell.
13. Bracken, Ian. 1981. Urban Planning Methods: Research and Policy Analysis. London: Methuen & Co. Ltd.
14. Salkind, Neil J. (Editor), Encyclopaedia of Research Design, Sage Publication.
15. Schuster, J. M. D. 1986. "Quantitative reasoning in planning curriculum." Journal of Planning Education and Research, Vol. 6 #1, Autumn, pp. 30 - 36.
16. Kumar, Ranjit, 2005, *Research Methodology-A Step-by-Step Guide for Beginners*, (2nd Ed.), Singapore, Pearson Education.
17. Dawson, Catherine, 2002, Practical Research Methods, New Delhi, UBS Publishers' Distributors.

AP7172 | Detailed Project Report | 4 credits

Course Duration	Contact periods	Full Marks
13 weeks	6studio classes per week	200

COURSE OBJECTIVE

This studio course will enable the students with developing the skill of preparation of detailed project report of a project identified within the development plan of an urban area.

COURSE OUTCOME

On successful completion of this course, the students will be able to:

(i) understand natures and characteristics of projects that are identified with the developed plan of an urban area;
(ii) acquire knowledge on scope of a detailed project report;
(iii) know the sequential steps to follow for preparation of a detailed project report;
(iv) prepare a comprehensive list of required data and identify probable sources for making different assessments;
(v) perform different assessments guided by the prescribed techniques, norms and standards;
(vi) translate learning from the core and elective courses to the studio exercise;
(vii) prepare a comprehensive technical detailed project report.

MODULAR DIVISION OF THE SYLLABUS

MODULE	TOPIC	STUDIO PERIODS
The major sections of the Detailed Project Report (DPR) that shall be covered are as follows:		
1	Sector background context & broad project rationale	6
2	Project definition, concept and scope	6
3	Project cost	9
4	Project institution framework	6
5	Project financial structuring	9
6	Project phasing	6
7	Project O&M framework and planning	9
8	Project financial viability/sustainability	9
9	Project benefits assessments	6
10	Compilation of the Detailed Project Report	6
	Evaluation /interim Review	6

DETAIL COURSE CONTENT

After completion of the second semester, the students are fully knowledgeable about City Development Plan. The Development Plan is broken down to projects in different sectors. The successful implementations of projects are realisation of the Proposed Development Plan. The successful completion of a project depends on making a Detailed Project Report.

Initial study involves preparation of a comprehensive list of projects within the Development Plan prepared by the same students in their second semester sessional course Planning Project II or any other list that the Instructor deems suitable.

Students are required to prepare a comprehensive list of required data and identify probable sources before embarking upon the tasks. Students are expected to analyse the data collected to be used in different assignments.

The students are expected to work hands-on, in individual capacity or in groups as decided by the Instructor, for the purpose of accomplishing different assignments in sequences as listed in the modular division above. The entire exercise is also documented in the form of a compiled technical report.

COURSE EVALUATION

Evaluation for the course will consist of **two Interim Reviews of 50 marks each** and **100 marks for End Semester presentation** of the Detailed Project Report to a Jury of at least three Examiners consisting of the Teacher-in-Charge(s), one External Examiner and another Internal Examiner nominated by the DPGC. The evaluations are done with marks given by all the members of the Board having equal weightages.

REFERENCE BOOKS

1. Detailed Project Report: Preparation Toolkit, JNNURM, (sub-mission for Urban Infrastructure and Governance), Ministry Of Urban Development, Government of India.
2. Hudson, W. Ronald, Haas, Ralph, Waheed Uddin, "Infrastructure Management: Integrating, Design, Construction, Maintenance, Rehabilitation and renovation", McGraw Hill Publisher, 2013.
3. Chandra, Prasanna "Projects – Planning, Analysis, Selection, Implementation Review", Tata McGraw Hill Publishing Company Ltd., New Delhi. 2006.
4. Joy P.K., "Total Project Management - The Indian Context", Macmillan India Ltd., 1992.
5. Report on Indian Urban Infrastructure and Services – The High Powered Expert Committee for estimating the Investment Requirements for Urban Infrastructure Services, March 2011.

AP7191 | Planning Thesis Viva-Voce - I | 2 credits

Contact periods	Full Marks
End Semester Examination only	50

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of presentation and oral communication on the assignments completed in "Planning Thesis I (AP7171)" and defend own views on the Thesis work through a seminar in the End Semester Review in the form of a "Progress Report".

COURSE OUTCOME

On successful completion of this course, the students will be able to acquire the skill of presentation and oral communication on the assignments completed in "Planning Thesis I (AP7171)"and defend own views on the Thesis work.

COURSE EVALUATION

The student is required to defend the documented whole exercise of his thesis in the form of a "Progress Report" through drawings, reports, study sheets, models and digital presentations and verbal communications through a seminar in the End Semester Review and final viva-voce in the course "Planning Thesis Viva Voce I".

The student should present the "Progress Report" through a seminar in the End Semester Review before a Board consisting of at least Four Examiners consisting of the respective Supervisor/s, the Thesis Coordinator as one Internal Examiner common for all candidates, and two External Examiners nominated by the DPGC one of whom is the common External Examiner for all candidates in the Interim Reviews.

The thesis coordinator conducts the thesis defence, reviewing any revisions requested by the Board of Examiners at or after the defence, certifying that the completed thesis has Board's approval, and awarding a letter grade. All the members of the Board of Examiners sign the accepted thesis.

The purpose of the oral thesis defence is to make a final assessment of the quality of the thesis and for the Board to determine the acceptability of the thesis and the quality of the work.

This meeting, which is attended by all members of the Board of Examiners and which may be opened to others as well (e.g., announced and held in a classroom for a larger audience), begins with a brief presentation by the student, summarizing issues addressed and presenting key findings. The Board (and other attendees, if applicable) then asks questions and expresses criticisms, to which the student responds. This meeting is often a combination of critical responses to the document and discussions of the issues covered in the thesis project.

At the conclusion of the meeting, after the student leaves the room, members of the Board of Examiners discuss the thesis and decide on a "finding." The committee may accept the thesis at this stage; reject it; or accept it conditionally, specifying changes to be made prior to submission of the final copy. The conditional approval is at the Board's discretion and is only available within the time constraints reflected in the calendar. The Board cannot extend a due date. If a thesis is not completed by the due date, a grade of ''/" will be given.

Granting an oral defence is not tantamount to approval. Occasionally the Board may recommend that a defence not be held because of the poor quality or incompleteness of the draft. Acceptable theses are awarded grades of: "Ä+" (excellent), ''A" (Very Good), ''B" (good), or ''C" (Fair), "D" (Average), "P" (acceptable but with a significant deficiency or several minor deficiencies) as specified in the PG Ordinances of the Institute.

The evaluations are done with marks given by the external examiners of the Board, having equal weightages.

AP7192 | Filed Work and Training Viva-Voce | 2 credits

Course Duration	Contact periods	Full Marks
4-6 weeks	End Semester Examination Only	50

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of presentation and oral communication on the assignments completed in Field Work and Training and defend own views on the work completed through a seminar in the End Semester Review in the form of a "Field Work and Training Viva Voce".

COURSE OUTCOME

On successful completion of this course, the students will be able to acquire the skill of working in the offices hands-on planning related task, presentation and oral communication on the assignments completed in Field Work and Training Viva Voce and defend own views on the work.

DETAIL COURSE CONTENT

The student is required to find out with the help of DPGC the prospective planning offices dealing with planning related works in public or private sector where the student can undergo hands-on training for the duration of minimum 4 weeks and maximum 6 weeks, generally during the summer vacation after the completion of the Second Semester and before the commencement of the Third Semester classes.

COURSE EVALUATION

The student is to defend the documented whole exercise of his Field Work and Training in the form of a "Field Work and Training Report" through drawings, reports, study sheets and digital presentations and verbal communications through a seminar within the duration of the Third Semester on a date decided by the DPGC.

The student should present the "Field Work Training Viva Voce" along with the Performance Certificate given by his/her employer before a Board of Examiners consisting of at least three members of faculty of the department nominated by the DPGC.

The evaluations are done with marks given by all the members of the Board having equal weightages.

Second Year Second Semester (4th Sem.)

AP7271 | Planning Thesis - II | 12 credits

Course Duration	Contact periods	Full Marks
13 weeks	16 studio classes per week	300

COURSE OBJECTIVE

The objective of this thesis is to provide an opportunity to the students the completion of preparation of an independent, original, innovative and practical study/work individually on special project of his/her own choice from the domain of knowledge of Urban and Regional Planning in general inculcated through the teachings offered in first three semesters of the programme and related to current concerns in urban studies and planning that he/she initiated and worked on in the previous semester in the course "Planning Thesis - I (AP7171)".

COURSE OUTCOME

On successful completion of this course, the students will be able to**:**

(i) synthesize previous learning and experiences and apply on their meaning;
(ii) realise the deeper knowledge of a specialized topic;
(iii) complete as per design the significant independent project which has significance for planning or policy;
(iv) prove the hypothesis of research framed earlier;
(v) strengthen and demonstrate competence in answering already framed research questions and interpreting the meaning of findings;
(vi) adhere to the schedule of dates for completion of the major tasks, from data collection to analysis, drafting, revision, initial defence, and final revision and submission;
(vii) document the whole exercise in the form of a technical report to show to prospective employers or clients;
(viii) defend own views about the research/project work before the Board of Examiners.

DETAIL COURSE CONTENT

The thesis process is a multi-semester experience including a formal process of Thesis Preparation, Thesis Proposal and the Thesis. Normally the last year of a 2-year Master's Programme is devoted on project/thesis work engaged towards innovative research. This work is submitted at the end of the Fourth Semester as an original document prepared by the student known as "Master's Thesis". "Planning Thesis II" is the studio course to be pursued in the Fourth Semester, the concluding half, following the thesis preparation course "Planning Thesis - I (AP7171)"pursued in the Third Semester, consisting of bulk of data collection, analysis, and writing of the thesis.

The special study/work on the chosen topic/subject should offer scope to develop skill on different frontiers as sequentially stated below:

(i) organisation and carrying out of the plan and technique of analysis;
(ii) making inferences from the Literature Survey;
(iii) presentation of data collected from primary and secondary sources;
(iv) making inferences from the data collected;
(v) identification of existing issues, problems and constraints of the research/project;
(vi) identification of specific issues or focus area/s unique to the research/project;
(vii) simulation/projection to the future;
(viii) preparation of estimation of future demands;
(ix) formulation of planning policies for the research/project;
(x) formulation of planning strategies for the research/project;
(xi) preparation of planning proposals for the research/project;
(xii) preparation of a synopsis of the research/project;

(xiii) documentation of the whole exercise in the form of a technical report.

(xiv) presentation of the research/project work in the form of seminar;

(xv) defending own views about the research/project work before the Board of Examiners.

The work pursued here must be appropriately rigorous which means that questions and hypotheses are explicitly formulated/reformulated and tested against data; and that conclusions are drawn and their implications assessed. The analysis presented in the thesis must be systematic. The form that the thesis takes should clearly relate to its intended audience. If the thesis consists of a design proposal, film project, or a project in another medium, written documentation must accompany the film, documents, plans, etc. The length of the thesis is not important, though it should be no longer than is required to achieve its goals.

Works related to the Planning Thesis are performed by the students and need regular interaction (at least once a week) with the Supervisor. The corresponding portions of exercises at each stage of the Planning Thesis work are documented in the form of technical reports that after being approved duly by the respective Supervisor/s are evaluated and the Sessional marks shall be based on the performance of the student during the consecutive Interim Reviews and the final presentation should be spaced evenly throughout the semester.

COURSE EVALUATION

There are **two interim reviews of 150 marks each**. The Interim Reviews are conducted by a Board of at least three examiners consisting of the respective Supervisor/s, the Thesis Coordinator as one Internal Examiner common for all candidates, and one External Examiner nominated by the DPGC who will be the common External Examiner for all candidates and who will further continue to act as one of the two external examiners in the End Semester Review and the "Planning Thesis Viva-Voce II (AP7292)" to be conducted at the end of the Semester.

The evaluations of the Interim Reviews and the End Semester Review are done with marks given by all the members of the Board having equal weightages.

REFERENCE BOOKS

1. Anselin L., Varga A. and Acs Z. (1997), "Local Geographic Spillovers between University Research and High Technology Innovations", *Journal of Urban Economics*, vol. 42, pp. 422-448.
2. Anselin L., Varga A. and Acs Z. (2000), "Geographic and Sectoral Characteristics of Academic Knowledge Externalities", *Papers in Regional Science*, vol. 79, n. 4, pp. 435-443.
3. Reason, P., and H. Bradbury, eds. (2008). The SAGE Handbook of Action Research: Participative Inquiry and Practice. London: SAGE.
4. Remenyi, D. (2012). Case Study Research. The Quick Guide Series. Reading: Academic Conferences.
5. Yin, R. (2009). Case Study Research. Thousand Oaks: SAGE.
6. Silverman, D., ed. (2011). Qualitative Research. London: SAGE.
7. Somekh, B., and C. Lewin. (2011). Theory and Methods in Social Research. 2nd edition. London: SAGE.
8. Thyer, B. (2010). The Handbook of Social Work Research Methods. London: Sage.
9. Yanow, D., and P. Schwartz-Shea, eds. (2006). Interpretation and Method: Empirical Research Methods and the Interpretive Turn. New York: M. E. Sharpe.
10. Scolozzi, R.; Morri, E.; Santolini, R. Delphi-Based Change Assessment in Ecosystem Service Values to Support Strategic Spatial Planning in Italian Landscapes. Ecol. Indic. 2012.
11. Salkind, Neil J. editor, 2007, Encyclopaedia of Measurement and Statistics, Sage Publication.
12. Cramer, Duncan, Howitt, Dennis Laurence, 2004, The SAGE Dictionary of Statistics, Sage Publication.
13. Given, Lisa M. editor, 2008, The Sage Encyclopaedia of Qualitative Research Methods, Sage Publication.
14. Lavrakas, Paul J, Editor, Encyclopaedia of Survey Research Methods, Sage Publication.
15. Taylor, Steven J. Bogdan, Robert, DeVault, Marjorie, 2016, Introduction to Qualitative Research Methods, Sage Publication.
16. Fowler, F. J. 2008. *Survey Research Methods*. New Delhi: SAGE Publications.
17. Kothari, C.R., 1985, *Research Methodology- Methods and Techniques,* New Delhi, Wiley Eastern Limited.

AP7291 | Planning Thesis Report | 8 credits

Contact periods	Full Marks
End Semester Examination Only	100

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of documentation of the whole exercise on the assignments completed in Planning Project II in the form of a technical report, presentation and oral communication.

COURSE OUTCOME

On successful completion of this course, the students will be able to:

(i) prepare a synopsis of the research/project;
(ii) document the whole exercise in the form of a technical report;
(iii) present the research/project work in the form of seminar;
(iv) defend own views about the research/project work before the Board of Examiners.

DETAIL COURSE CONTENT

At the end of the Fourth Semester the student should submit "Planning Thesis report", a Technical Report in the form of a "Master's Thesis" duly supported by copious references acknowledging the sources of any existing literature to avoid plagiarism, sketches, graphs, statistical data, details of survey if any, detailed account of experimental analytical procedures adopted and duly approved by the respective Supervisor/s.

Finally, this comprehensive seminar report in the form of "Planning Thesis report" or "Master's Thesis" is prepared in prescribed format for publication/submission. The Thesis work report shall be typed with double space on A4 size bond paper. The total number of pages shall not be more than 200 and not less than 60; figures, graphs, annexure etc. be added as per requirement.

The "Master's Thesis" should consist of literature survey on the topic chosen in the relevant field, theoretical and or experimental work based on the literature, discussion on research hypothesis and conclusion.

The Master's Thesis report should be written in the following format:

1. Title Sheet;
2. Certificate(s);
3. Acknowledgment;
4. List of figures and tables;
5. Abbreviations;
6. Abstract / Final Synopsis;
7. Contents;
8. Text with usual scheme of chapters;
9. Discussion of the results and conclusion;
10. Scope of future research;
11. References and/Bibliography (the source of illustrative matter be acknowledged clearly at appropriate place).

Thesis supervisors are expected to provide guidance on thesis writing that is commensurate with their academic role. It is the responsibility of the student to ensure that the work they submit does not contain grammatical errors or other technical writing problems. It is student's responsibility prior to submitting work to correct these issues.

COURSE EVALUATION

The student should submit the Report to the postgraduate thesis coordinator at a time specified by the coordinator so that the Reports may be sent to the Board of Examiners a week before the date of "Planning Thesis Viva-Voce II (AP7292)", for examination.

The Board of Examiners consists of at least two External Examiners nominated by the DPGC one of whom is the common External Examiner for all candidates in the Interim Reviews. The evaluations of the "Planning Thesis Report" are done with marks given by all the members of the Board having equal weightages.

AP7292 | Planning Thesis Viva-Voce - II | 4 credits

Contact periods	Full Marks
End Semester Examination Only	100

COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of presentation and oral communication on the assignments completed in "Planning Thesis II (AP7271)"and defend own views on the Thesis work through a seminar in the end of the Semester.

COURSE OUTCOME

On successful completion of this course, the students will be able to acquire the skill of presentation and oral communication on the assignments completed in "Planning Thesis II (AP7271)" and defend own views on the Thesis work.

COURSE EVALUATION

The student is required to defend the documented whole exercise of thesis in the form of a "Planning Thesis Report" or "Master's Thesis" through drawings, reports, study sheets, models and digital presentations and verbal communications through a seminar in the End Semester Review and final viva-voce in the course "Planning Thesis Viva Voce II".

The student should present the "Planning Thesis Report" or "Master's Thesis through a seminar at the end of the Semester before the Board of examiners as specified in AP7291.

The thesis coordinator conducts the thesis defence, reviewing any revisions requested by the Board of Examiners at or after the defence, certifying that the completed thesis has Board's approval, and awarding a letter grade. All the members of the Board of Examiners sign the accepted thesis.

The purpose of the oral thesis defence is to make a final assessment of the quality of the thesis and for the Board to determine the acceptability of the thesis and the quality of the work.

This viva voce, which is attended by all members of the Board of Examiners begins with a brief presentation by the student, summarizing issues addressed and presenting key findings. The Board of Examiners then asks questions and expresses criticisms, to which the student responds. This viva voce is often a combination of critical responses to the document and discussions of the issues covered in the thesis project.

At the conclusion of the viva voce, after the student leaves the room, members of the Board of Examiners discuss the thesis and decide on a "finding." The Board may accept the thesis at this stage; or accept it conditionally, specifying changes to be made prior to submission of the final copy. The conditional approval is at the Board's discretion and is only available within the time constraints reflected in the calendar. The Board cannot extend a due date. If a thesis is not completed by the due date, a grade of ''I" will be given. This course may be subsequently completed as per the provision of the PG Ordinance of the Institute.

Acceptable theses are awarded grades of: "Ä+" (excellent), ''A" (Very Good), ''B" (good), ''C" (Fair), "D" (Average) or "P" (acceptable but with a significant deficiency or several minor deficiencies) as specified in the PG Ordinances of the Institute.

The evaluations are done with marks given by all the members of the Board of Examiners having equal weightages.