

## Course Structure for Postgraduate Programme

*Leading to the award of*

### **Degree of Master of Planning** (Specialization in Urban and Regional Planning)

Session 2025-'26 onwards

Duration of the courses

**4 Semesters (Two Years)**

Adopted in the 11<sup>th</sup> Emergency Meeting of the DFC held on 11, 12 and 16 June 2025; and the  
7<sup>th</sup> Meeting of the DPGC held on 19 June 2025.



**Department of Architecture and 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	50
4	Internship/ 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		
		Theory	Practical (Studio/ Lab./ Viva-Voce/ Thesis)	Total	Theory	Practical (Studio/ Lab./ Viva-Voce/ Thesis)	Total	Theory	Practical (Studio/ Lab./ Viva-Voce/ Thesis)	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	-	18	18	-	24	24	-	500	500
<b>Grand Total</b>					32	58	90	1050	1950	3000

**Course Structure – First Year First Semester (1<sup>st</sup> Sem.)**

Course Code	Course Category	Course Title	Class Load/ Week			Marks	Credit
Theoretical Courses			L	T	S		
AP6101N	PC	Planning Theory	3	0	0	100	3
AP6102N	PC	Transportation Planning	3	0	0	100	3
AP6103N	PC	Infrastructure, Network and Services	3	0	0	100	3
AP6104N	PC	Statistical Methods and Planning Techniques	3	0	0	100	3
AP6121N	PSE	Socio-Economic Basis of Planning	3	0	0	100	3
AP6122N	PSE	Disaster Mitigation Planning					
AP6123N	PSE	Urban Design and Conservation					
Sub total			15	0	0	500	15
Practical Courses (Studio / Laboratory / Viva-Voce)							
AP6171N	PC	Planning Studio I	0	0	9	300	6
AP6172N	PC	GIS and Remote Sensing	0	0	3	50	2
AP6191N	O	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 (2<sup>nd</sup> Sem.)**

Course Code	Course Category	Course Title	Class Load/ Week			Marks	Credit
Theoretical Courses			L	T	S		
AP6201N	PC	Regional Planning	3	0	0	100	3
AP6202N	PC	Environmental Planning	2	0	0	50	2
AP6203N	PC	Planning Legislation and Professional Practice	3	0	0	100	3
AP6204N	PC	Housing and Urban Renewal	3	0	0	100	3
AP6221N	PSE	Urban Informatics	3	0	0	100	3
AP6222N	PSE	Climate Change and Human Settlements					
AP6223N	PSE	Rural Development and Planning					
	OE	An open elective course from the basket					
Sub total			14	0	0	450	14
Practical Courses (Studio / Viva-Voce)							
AP6271N	PC	Planning Studio II	0	0	12	400	8
AP6291N	O	Planning Viva-Voce II	Examination Only			50	2
Sub total			0	0	12	450	10
TOTAL			26			900	24

Course Code	Course Category	Course Title	Class Load/ Week			Marks	Credit
Open Elective Course offered by the Dept. of Arch. & Plan.			L	T	S		
AP6261N	OE	Smart City Planning	3	0	0	100	3

**Course Structure – Second Year First Semester (3<sup>rd</sup> Sem.)**

Course Code	Course Category	Course Title	Class Load/ Week			Marks	Credit
Theoretical Courses			L	T	S		
	VAC	A value added course from a basket of courses.	3	0	0	100	3
<b>Sub total</b>			<b>3</b>	<b>0</b>	<b>0</b>	<b>100</b>	<b>3</b>
Practical Courses (Thesis / Internship/ Viva-Voce)							
AP7171N	PC	Detailed Project Report	0	0	6	200	4
AP7172N	P	Planning Thesis I	0	0	9	300	6
AP7191N	I	Internship and Viva-Voce	6 - 8 weeks			50	2
AP7192N	O	Planning Thesis Viva-Voce I	Examination Only			50	2
<b>Sub total</b>			<b>0</b>	<b>0</b>	<b>15</b>	<b>600</b>	<b>14</b>
<b>TOTAL</b>			<b>18</b>			<b>700</b>	<b>17</b>

Course Code	Course Category	Course Title	Class Load/ Week			Marks	Credit
Value added Course offered by the Dept. of Arch. & Plan.			L	T	S		
AP7131N	VAC	Urban Governance and Finance	3	0	0	100	3

**Course Structure – Second Year Second Semester (4<sup>th</sup> Sem.)**

Course Code	Course Category	Course Title	Class Load/ Week			Marks	Credit
Practical Courses (Thesis / Viva-Voce)							
AP7271N	P	Planning Thesis II	0	0	18	300	12
AP7291N	O	Planning Thesis Report	Examination Only			100	8
AP7292N	O	Planning Thesis Viva-Voce II	Examination Only			100	4
	<b>TOTAL</b>		<b>0</b>	<b>0</b>	<b>18</b>	<b>500</b>	<b>24</b>

**First Year First Semester (1<sup>st</sup> Sem.)**

AP6101N | Planning Theory | 3 credits

**Course Category**  
PC**Contact periods**  
3 lectures per week**Full Marks**  
100**Pre-requisite Courses**  
Nil**Co-requisite Courses**  
Nil**Progressive Courses**  
Nil**Course Duration**  
14 weeks**Course offering Department**  
Architecture and Planning**Codes / Standards**  
—**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) develop cognitive skill in emerging philosophies and process of planning of human settlement;
- (iv) 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	PERIODS
1	Introduction to Evolution of Planning Theory	9
2	Planning Theory	10
3	Emerging Concepts in Planning Theory	7
4	Evaluation of planning practices	6
5	Future of Urban Settlements	7
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Introduction to Evolution of Planning Theory****9 periods**

Module Outcome: The students will be able to identify the potential, scope, and limitation of different paths of evolution of thoughts in planning of human settlement since prehistoric till post- industrialisation period

- 1.1 Introduction to planning
- 1.2 Evolution of planning process in Sumerian, Egyptian, Greek, and Roman civilization.
- 1.3 Oriental culture and civilisation:
- 1.4 Settlements in Renaissance Period.
- 1.5 Effects of Industrial Development on cities
- 1.6 The Paris Experience, The City Beautiful Movement, Emergence of Commercial Cities. Start of modern trends in town planning

## **Module 2 Planning Theories**

**10 periods**

Module Outcome: The students will be able develop cognitive skill in philosophies and thoughts of planning of human settlement

- 2.1 Planned decentralisation, Garden City, Patrick Geddes-planning concepts, Neighbourhood Unit, Radburn Concept;
- 2.2 Linear City, Le Corbusier - planning concepts, C.I.A.M. , Linear industrial City, The Culture of Cities, Ekistics and the City. Twentieth Century Development in India
- 2.3 Theories of Urban Structure: Von Thünen's William Alonso, Bid-Rent theory, Christaller, Losch - Rank size rule, primacy.
- 2.4 Theories of city development: Concentric Zone Theory, Sector Theory, Multiple Nuclei Theory.

## **Module 3 Emerging Concepts in Planning Theory**

**7 periods**

Module Outcome: The students will be able develop an understanding of the emerging concepts in planning theory.

- 3.1 Models of planning: Advocacy and Pluralism in Planning; systems approach to planning, rationalistic and incremental approaches, transformative incremental, mixed scanning, and middle range planning
- 3.2 Emerging Concepts: global city, inclusive city, safe city, etc. shadow cities, divided cities, walkable cities, compact city

## **Module 4 Evaluation of planning practices**

**6 periods**

Module Outcome: The students will be able develop an understanding of the current challenges and potential of approaches for planning of human settlement

- 4.1 Urban challenges of the 21st century
- 4.2 Potentials offered by new approaches to urban planning

## **Module 5 Future of Urban Settlements**

**3 periods**

Module Outcome: The students will be able to understand the factors that contribute towards guiding the future planning process of human settlement

- 5.1 Sustainable urban Development, Resilient cities
- 5.2 Smart cities, Integrated land use and Transportation in planning
- 5.3 Concepts on urban farming, vertical farms, and other strategies
- 5.4 Concepts on Liveability

## **LEARNING RESOURCES**

1. Hall, P., 2001, Cities of tomorrow: an intellectual history of urban planning and design in the twentieth century, Blackwell, London.
2. Gallion, A.B. and Eisner, S., 1950. The Urban Pattern; City Planning and Design.
3. McLaughlin, J. B., 1969, Urban and Regional Planning. A systems approach, Faber and Faber, London.
4. Faludi, A., 1973, A Reader in Planning Theory, Pergamon Press, London.
5. Peter, G. H. and Tewdwr-Jones, 2011, Urban and Regional Planning, M., Routledge, London. Fifth Edition.
6. Healey, P., 1997, Collaborative Planning: Shaping Places in Fragmented Societies, Macmillan, London.

AP6102N | Transportation Planning | 3 credits

**Course Category**

PC

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

Nil

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**COURSE OBJECTIVE**

The objective of this course is:

- (i) To provide foundational knowledge of transportation systems, traffic engineering, and urban mobility planning, including travel demand forecasting and public transit operations.
- (ii) To enable students to analyse the interconnections between land use, environmental and economic impacts, and local area traffic management for sustainable urban development.
- (iii) To introduce emerging technologies and Intelligent Transportation Systems (ITS) for designing efficient, safe, and future-ready transportation solutions.

**COURSE OUTCOME**

On successful completion of this course, the students will:

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

On successful completion of this course, the students will:

**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	PERIODS
1.	Introduction to transportation planning	3
2.	Fundamentals of traffic engineering	6
3.	Urban travel demand forecasting	9
4.	Public transit systems	6
5.	Local area traffic management and transportation safety	6
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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

- 1. understand the historical evolution and classifications of transportation systems and modes.
- 2. identify major transportation issues and challenges in urban and regional planning.
- 3. gain familiarity with various types of transportation surveys and data collection methods.

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

## **Module 2 Fundamentals of traffic engineering**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. interpret key traffic flow parameters and relationships (speed, flow, density).
2. analyse traffic stream models and apply them to design and evaluate roadways.
3. design intersections, grade separators, and traffic signal systems with engineering considerations.

- 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**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. explain the sequential steps of the travel demand forecasting process.
2. apply models for trip generation, distribution, modal split, and trip assignment.
3. analyse urban mobility patterns to support planning decisions.

- 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**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. understand the elements of public transit planning, including demand and capacity assessment.
2. analyse uninterrupted and interrupted flow conditions in transit system planning.
3. design operational strategies for efficient transit service delivery.

- 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**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. evaluate and design pedestrian, bicycle, and intermediate transport facilities.
2. propose effective local traffic management and parking strategies.
3. understand the fundamentals of traffic safety and formulate mitigation approaches.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. explain the interplay between urban land use patterns and travel behaviour.
2. apply transportation-land use interaction models to assess urban development impacts.
3. evaluate how land use planning affects mobility and vice versa.



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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. assess the environmental impacts of transportation systems and energy usage.
2. conduct basic economic evaluations of transportation projects using cost-benefit principles.
3. understand the trade-offs between system efficiency, sustainability, and cost.

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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. understand the components and architecture of Intelligent Transportation Systems (ITS).
2. evaluate real-world ITS applications for improving traffic management and mobility.
3. explore emerging technologies in transportation and their potential impacts.

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

8.2 ITS applications.

**LEARNING RESOURCES**

1. Papacostas, C. S., and Prevedouros, P. D. Transportation Engineering and Planning (3rd Ed.), Pearson Education.
  2. Khisty, C. J., and Lall, B. K. Transportation Engineering: An Introduction (3rd Ed.), Prentice Hall.
  3. Kadiyali, L. R. Traffic Engineering and Transport Planning, Khanna Publishers.
  4. Meyer, M. D., & Miller, E. J. Urban Transportation Planning (2nd Ed.), McGraw-Hill.
  5. Sinha, K. C., & Labi, S. Transportation Decision Making: Principles of Project Evaluation and Programming, Wiley.
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AP6103N | Infrastructure, Network and Services | 3 credits

**Course Category**

PC

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

Nil

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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

**DETAIL COURSE CONTENT****Module 1 Introduction to infrastructure, network and services****3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Understand various elements of infrastructure and its relationship with urban planning,
2. Understand the process of infrastructure planning.
- 1.1 Introduction to the elements of infrastructure, its significance, and its relation with urban planning,
- 1.2 Design and operation of urban services and network systems,
- 1.3 Provision of infrastructure and role of the state.

## **Module 2 Water supply system**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for planning of water supply system for an urban area/ region.

- 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 wastewater disposal**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for planning of sanitation and wastewater disposal system for an urban area/ region.

- 3.1 Characteristics of wastewater; 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**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for planning of storm water management and urban drainage for an urban area/ region.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for planning of solid waste.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for planning of fire protection, electricity, and communication network for an urban area/ region.

- 6.1 Planning for fire protection.
- 6.2 Planning for electricity network.
- 6.3 Planning for communication network.

## **Module 7 Planning for social infrastructure**

**3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for planning of social infrastructure for an urban area/ region.

- 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**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various aspects for economic analysis of infrastructure for an urban area/ region.

8.1 Cost of services

8.2 Cost recovery and pricing

8.3 Subsidies and social justice.

**LEARNING RESOURCES**

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.
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## AP6104N | Statistical Methods and Planning Techniques | 3 credits

<b>Course Category</b> PC	<b>Contact periods</b> 3 lectures per week	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**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	PERIODS
1	Introduction to Statistical Methods	6
2	Working with variables	6
3	Projections	6
4	Data and Sampling	6
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**

MODULE OUTCOME: On successful completion of this module, the students will have understanding of basic statistics and application in urban planning

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**

MODULE OUTCOME: On successful completion of this module, the students will be able to apply correlation, regression, and ANOVA to analyse urban data, identify patterns, and support informed urban planning decisions.

Correlation, Regression types and analyses, ANOVA.

**Module 3 Projections****6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to apply time series and forecasting methods to predict urban population trends and support strategic, data-driven urban planning decisions.

Time series analysis, population forecasting methods.

**Module 4 Data and Sampling**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to –

1. Understand methods of data collection and effective questionnaire design tailored to urban planning research.
2. Apply appropriate sampling techniques for reliable and representative urban surveys.
3. Present collected data clearly using charts, tables, and graphical tools to support urban analysis.

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

**Module 5 Analytical Techniques in Planning**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will have an understanding of applicability of various planning techniques considering the type of problems

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**

MODULE OUTCOME: On successful completion of this module, the students will be able to –

1. Understand methods of data collection and effective questionnaire design tailored to urban planning research.
2. Apply appropriate sampling techniques for reliable and representative urban surveys.
3. Present collected data clearly using charts, tables, and graphical tools to support urban analysis.

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

**LEARNING RESOURCES**

1. 3e Statistics – A Gentle Introduction / Frederick D. Coolidge
  2. Statistical Methods / N. G. Das
  3. Probability and Statistics for Engineers / Dr. J. Ravichandran.
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AP6121N | Socio-economic Basis of Planning | 3 credits

**Course Category**

PSE

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

Nil

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**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	PERIODS
1	Development Theory	6
2	Nature and Scope of Sociology	6
3	Community and Settlements	9
4	Elements of Micro and Macro Economics	9
5	Development Economics and Lessons from Indian Experiences	9
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Development Theory****6 periods**

MODULE OUTCOME: On successful completion of this module, the students will have understanding of the concept of development and its relationship with urban and regional planning.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will have understanding of key sociological concepts, socio-cultural profile of Indian society, and the relationship between sociology and urban/ regional planning.

- 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**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will have understanding of social problems, urban and rural social transformation, and the role of socio-cultural aspects on growth patterns of city, neighbourhood and communities.

- 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**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will have understanding of key economic concepts (both micro and macro), and the relationship between economics and urban/ regional planning.

- 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 Elements of Micro and Macro Economics**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will have understanding of key concepts of development economics and the policies and strategies in economic planning, especially in Indian context.

- 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.

#### **LEARNING RESOURCES**

- 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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## AP6122N | Disaster Mitigation Planning | 3 credits

<b>Course Category</b> PSE	<b>Contact periods</b> 3 lectures per week	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**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	PERIODS
1	Introduction to disasters	3
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	5
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Introduction to Disasters****3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Clearly define key concepts related to disasters.
2. Identify and differentiate between major natural and human-induced disasters at global and national levels and

analyse their impacts on communities.

3. Describe the disaster profile of the Indian subcontinent and assess specific vulnerabilities and risks at the regional level.
  - 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Explain the evolution of disaster mitigation policies, and the role of key global (e.g., United Nations) and national institutions (e.g., NDMA, Ministry of Home Affairs).
2. Describe the disaster management cycle and its phases.
3. Identify the components of risk and develop strategies for risk reduction.
  - 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Conducting vulnerability assessments to identify community risks.
2. Understanding the concept of community resilience and how to strengthen it.
3. Developing emergency management plans.
4. Understanding the importance of communication and risk management policies and plans in disaster preparedness and describe their roles in minimizing disaster impact.
  - 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Developing effective emergency response plans.
2. Utilizing geo-spatial technologies to support and enhance response operations during emergencies.
3. Understanding the importance of collaboration and coordination among various agencies and stakeholders in emergency response planning and management.
  - 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 response: Planning for Recovery**

**3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Describing different recovery time frames and their significance in disaster recovery planning.
2. Understanding and analyzing strategies for long-term recovery.
  - 5.1 Recovery time frames
  - 5.2 Long-time recovery

## **Module 6 Planning for rehabilitation and Reconstruction**

**3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Understanding the concepts of recovery, livelihood restoration, and approaches to reconstruction in disaster-

affected communities.

2. Developing strategies for housing reconstruction for safe, sustainable, and resilient rebuilding efforts.

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

6.2 Housing reconstruction.

### Module 7 Gender and disasters

3 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Understanding the intersection of gender and social vulnerability in disaster contexts.
2. Analyzing how gendered environments influence vulnerability, resilience, and recovery during and after disasters.
3. Recognizing the importance of incorporating gender-sensitive approaches in disaster risk reduction, response, and recovery efforts.

Social vulnerability vis-à-vis gendered environments

### Module 8 Best practices in disaster mitigation planning

5 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Analyzing national examples of best practices in disaster management planning (DMP) with case studies.
2. Evaluating international best practices in disaster mitigation, with case studies.
3. Applying insights from these examples to design effective, context-specific disaster mitigation strategies for community resilience and disaster risk reduction

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

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

### LEARNING RESOURCES

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.

AP6123N | Urban Design and Conservation | 3 credits

**Course Category**

PSE

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

Nil

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**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:

- 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.
- 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.
- develop critical and analytical thinking along with the ability to communicate this thinking (writing, oral and graphic presentation, other media)
- 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	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	6
6	Conservation Planning in India	6
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****MODULE OUTCOME:**

- Describing the historical evolution of urban development and its influence on contemporary urban form.
- Explaining key urban design elements.
- Differentiating between various types of urban design projects, with an understanding of their definitions, typologies, examples, and project drivers.

- 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**

MODULE OUTCOME:

1. Explaining the urban design process.
2. Demonstrating proficiency in various survey techniques.
3. Applying different analysis methods to support informed urban design decisions.
- 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**

MODULE OUTCOME:

1. Understanding the roles of urban designers across different scales.
2. Developing and guidelines addressing major urban design issues within planning frameworks.
3. Understanding the importance of community participation and awareness-raising in urban design processes for inclusive and sustainable urban planning outcomes.
- 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**

MODULE OUTCOME:

1. Understanding the role of conservation in urban development, values of cultural properties: threats and opportunities.
2. Understanding city dynamics and conservation, city-specific approaches to conservation.
- 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 6 periods**

MODULE OUTCOME:

1. Understanding civil works in the nineteenth century and the origin of the Conservation movement
2. Explaining Patrick Geddes and conservative surgery, post-war reconstruction, and urban conservation
3. Explaining integrated conservation and development and the sustainability agenda in 1990s.
- 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      6 periods**

MODULE OUTCOME:

1. Explaining the practice of conservation and Archaeological Survey of India, the difference between Indian and European approaches to conservation.
2. Understanding Indian identity in conservation: collage of time and collage of cultures.
- 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**

MODULE OUTCOME:

1. Analysing the issues confronting heritage zones in Indian cities.
2. Explaining the case studies of heritage zone planning and emerging challenges.
- 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**

MODULE OUTCOME:

1. Defining grading in conservation
2. Explaining AMASR Act and development control regulations.
3. Explaining financial and other incentives for conservation.
- 8.1 Grading in Conservation
- 8.2 AMASR Act and Development Control Regulations
- 8.3 Financial and Other Incentives for Conservation

**LEARNING RESOURCES**

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

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AP6171N

Planning Studio I

6 credits

**Course Category**  
PC**Contact periods**  
9 studio classes per week**Full Marks**  
300**Pre-requisite Courses**  
Nil**Co-requisite Courses**  
AP6191N**Progressive Courses**  
AP6271N**Course Duration**  
14 weeks**Course offering Department**  
Architecture and Planning**Codes / Standards**  
—**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).

**ASSIGNMENTS OF THE COURSE**

ASSIGNMENT	TOPIC	PERIODS
1	Literature Review	24
2	Residential development	30
3	Area Appreciation	36
4	Site Planning	36

**DETAIL COURSE CONTENT**

The content of Planning Studio 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) 24 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) 30 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 evidence 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.

**LEARNING RESOURCES**

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.

AP6172N | GIS and Remote Sensing | 2 credits

**Course Category**  
PC**Contact periods**  
3 laboratory classes per week**Full Marks**  
50**Pre-requisite Courses**  
Nil**Co-requisite Courses**  
Nil**Progressive Courses**  
Nil**Course Duration**  
14 weeks**Course offering Department**  
Architecture and Planning**Codes / Standards**  
—**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	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	6

## DETAILED COURSE CONTENT

### Module 1 Introduction to Remote Sensing

3 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to understand components of remote sensing and software tool for image processing and analysis.

- 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

MODULE OUTCOME: On successful completion of this module, the students will be able to understand GIS software tool, geo-referencing and coordinate systems.

- 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

MODULE OUTCOME: On successful completion of this module, the students will be able to understand application of remote sensing in regional studies, identification of land surface features, and urban remote sensing issues.

- 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

MODULE OUTCOME: On successful completion of this module, the students will be able to understand GIS applications in planning and its role in physical planning.

- 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 modelling;
- 4.3 Introduction to GPS technology.

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

6 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the application of GIS to a specific field of planning.

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

## LEARNING RESOURCES

### 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](http://www.opensourcegis.org)
3. <http://www.gis.com>
4. [www.esri.com](http://www.esri.com)
5. [www.qgis.com](http://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
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AP6191N	Planning Viva-Voce I	2 credits
<b>Course Category</b> O	<b>Contact periods</b> End Semester Examination only	<b>Full Marks</b> 50
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> AP6171N	<b>Progressive Courses</b> Nil
<b>Course Duration</b> —	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

### 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 Studio I (AP6171N)”.

### 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 Studio I (AP6171N)”.

### COURSE EVALUATION

The viva-voce examination will be conducted at the end of the semester by the same Board of Jury constituted for “Planning Studio I (AP6171N)”.

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**First Year Second Semester (2<sup>nd</sup> Sem.)**

AP6201N | Regional Planning | 3 credits

**Course Category**  
PC**Contact periods**  
3 lectures per week**Full Marks**  
100**Pre-requisite Courses**  
Nil**Co-requisite Courses**  
Nil**Progressive Courses**  
Nil**Course Duration**  
14 weeks**Course offering Department**  
Architecture and Planning**Codes / Standards**  
—**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:—

- (i) understand the urbanisation phenomena, its context, potential, scope, limitation and challenges;
- (ii) understand the urban informal sector, its issues, problems and constraints;
- (iii) 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;
- (iv) 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	PERIODS
1	Urbanisation phenomena	5
2	Metropolitan Growth	6
3	Urban informal growth and its planning	10
4	Regional Planning	12
5	Planning and Management for Metropolitan Region	6
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Urbanisation phenomena****5 periods**

**MODULE OUTCOME:** On successful completion of this module, the students will be able to understand the urbanisation phenomena, its context, potential, scope, limitation, and challenges.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the metropolitan growth, its issues, problems, and constraints.

- 2.1 Past and future of metropolitan growth, global characteristics and challenges in developed and developing countries, 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 and Region Linkages; Urban Sprawl; Dynapolis, Megalopolis and Ecumenopolis, concepts and their applicability.

## **Module 3 Urban informal growth and its planning**

**10 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the urban informal sector, its issues, problems, and constraints.

- 3.1 Basic need and their provision for various target groups and informal sectors;
- 3.2 Basic needs and provision for various target groups and informal sectors;
- 3.3 Concepts and causes of spontaneous growth: Regional inadequacies and the settlements systems, Role of migration; Informal sector and socio-economic deprivation.
- 3.4 Consequences of spontaneous growth; Actions for improvement: Appraisal of the role of government, private and voluntary organisation;
- 3.5 Existing management and organisational set up, their limitations, Possible integrated approaches;
- 3.6 Dimensions of urban poverty. Magnitude of the problems and major characteristics of spontaneous growth;
- 3.7 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**

**12 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the 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.

- 4.1 Definition, scope and content of Regional Planning. Need for Regional Planning, Concepts of spatial organisation and region;
- 4.2 Concept of regional growth processes : (Some approaches of Weber, Rostow, Hirschman, Myrdal, Friedman etc.), Concept of growth centres, growth pole, service centre and agropolitan district concept in developed and developing countries;
- 4.3 Spatial growth process, settlement structure and distribution, Spatial growth theories;
- 4.4 Introduction to regional/economic industrial location theories, 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, Regional accounting and input output analysis;
- 4.5 Regional development models: their structures, characterization and construction.
- 4.6 Regional imbalances and inequalities, Regional – structural adjustment and development policies for industrial, agricultural sectors etc.
- 4.7 Population growth, distribution and regional development. Population distribution and resource base;
- 4.8 Identification and development policies and approaches in India, Decentralised and multi-level planning approaches, district planning, and block level planning, Resource management, Traditional knowledge and institutional systems, Institutional framework for regional planning.

## **Module 5 Planning and Management for Metropolitan Region**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the 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.

- 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; Urban redevelopment and renewal, Goals and objectives, methods of plan preparation implementation, Administration, Legal and fiscal framework; Alternative strategies to metropolitan growth planning, development process and issues.

#### **LEARNING RESOURCES**

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
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AP6202N	Environmental Planning	2 credits
<b>Course Category</b> PC	<b>Contact periods</b> 2 lectures per week	<b>Full Marks</b> 50
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**COURSE OBJECTIVE**

The objective of this course is to provide understanding of environmental modification beyond liveability 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	PERIODS
1	Introduction to environment and environmental planning Issues	3
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	3
7	Environmental impact Assessment	4
	Term Paper/ Teachers' Assessment	2

**DETAIL COURSE CONTENT****Module 1 Introduction to environment and environmental planning issues 3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the elements of the environment and various issues and aspects of environmental planning.

- 1.1 Introduction to Environment and issues related to planning
- 1.2 Environmental Planning – Planning Process – Pollution:

1.3 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the cultural and climatic factors of environmental design and planning.

Cultural and climatic factors – Water and sanitation

**Module 3 Environment and human settlement imperatives 4 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the cultural and climatic factors of environmental design and planning.

3.1 Environmental pollution and human health

3.2 Water and sanitation - Water pollution.

**Module 4 Environmental resources 4 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the cultural and climatic factors of environmental design and planning.

4.1 Land and water ecosystem and its degradation and possibilities of revival

4.2 Role of forestry and sustainable utilization.

**Module 5 Environmental factors in design 4 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various environmental factors and its relevance in urban/ regional planning and design.

5.1 Identification of environmental constrain and opportunities, prediction of environmental impact

5.2 Urban climate and its relevance in planning and design,

5.3 Scales of decision making.

**Module 6 Energy and human settlement 3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to various energy sources and its implication on planning of human settlement.

6.1 Role of energy in planning

6.2 Alternative technologies.

**Module 7 Environmental Impact Assessment 4 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various energy sources and its implication on planning of human settlement.

Approach, methodologies and management

**LEARNING RESOURCES**

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: Rohrlisch
7. The economics of environmental management by Lowe and Lewis.

## AP6203N | Planning Legislation and Professional Practice | 3 credits

<b>Course Category</b> PC	<b>Contact periods</b> 3 lectures per week	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**COURSE OBJECTIVE**

The objective of this course is:

- To develop a comprehensive understanding of the constitutional, legal, and institutional frameworks that shape planning practices in India and internationally.
- To equip students with knowledge of contemporary legislation, planning regulations, and regulatory mechanisms that influence urban and regional development.
- To instil professional ethics, roles, and responsibilities required for effective and responsible planning practice.

**COURSE OUTCOME**

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

- Significance and scope of planning legislations in general and, their constitutional basis in India in particular
- Evolution of planning legislation in U.K. (pioneering state) and in India
- Significant constitutional reforms and important acts related to urban and regional planning
- 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	PERIODS
1	Introduction	3
2	Historical perspective	6
3	Constitutional amendment	3
4	Existing legislative framework	3
5	Planning regulations	3
6	Planning acts	15
7	Professional practice	6
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Introduction****3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

- Understand the scope, purpose, and necessity of planning legislation.
- Analyse the constitutional provisions related to land, development, and governance.
- Explain legal concepts like eminent domain, police power, and taxation as the basis for planning laws.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Trace the development of planning laws in the U.K., including structure plans and local plans.
2. Understand the historical evolution of planning legislation in India and its socio-political context.
  - 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

1. Comprehend the background and objectives of the 73rd and 74th Constitutional Amendments.
2. Analyse their impact on decentralized urban and regional planning practices in India.
  - 3.1 73<sup>rd</sup> and 74<sup>th</sup> 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

1. Identify and understand key contemporary planning legislations and their institutional mechanisms.
2. Explain procedures for preparation and implementation of regional, development, and town planning schemes.
3. Gain knowledge about the roles of institutions like TCPO, Development Authorities, and Improvement Trusts.
  - 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

1. Understand the role and structure of building byelaws and zoning regulations.
2. Analyse how development control regulations influence urban form and planning outcomes.
  - 5.1 Building byelaws.
  - 5.2 Development control and zoning regulations.

## **Module 6 Planning acts**

**15 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

1. Examine the objectives and implications of acts related to land acquisition, slum redevelopment, and rent control.
2. Understand legislative provisions for conservation of environment, natural resources, and built heritage.
3. Evaluate how various planning-related acts contribute to sustainable and inclusive urban development.

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**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

1. Understand the functions and goals of professional planning institutes and allied organizations.
2. Develop awareness of professional responsibilities, ethics, and the planner's role in society.
3. Learn the standards for professional conduct and determination of professional fees.

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.

**LEARNING RESOURCES**

1. Subhas C. Kashyap "Our Constitution", 4th Ed., 2005, National Book Trust, India.
  2. "Constitutional Amendments 73rd and 74th of 1992", 1993, Department of Publications, Government of India.
  3. Urban and Regional Development Plans Formulation and Implementation (URDPFI) Guidelines, 2015, TCPO Publication, Ministry of Housing and Urban Affairs.
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AP6204N | Housing and Urban Renewal | 3 credits

**Course Category**

PC

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

Nil

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**COURSE OBJECTIVE**

The objective of this course is to provide an overall appreciation of the housing scenario and urban renewal. Housing, considered as the third basic need of human being, is both a commodity as well as a system or a process involved in providing house for people. Urban Renewal is an integral part of urban development and entwined with housing activities.

**COURSE OUTCOME**

On successful completion of this course, the students will:

- (i) be aware of the global as well as Indian housing and urban renewal scenario,
- (ii) have a detailed understanding of the issues related to the housing sector and urban renewal,
- (iii) be aware of the initiatives, efforts and investments in housing with historical perspective, and,
- (iv) 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	PERIODS
1	Concepts and Definitions of Housing	6
2	Social and Economic Dimensions of Housing	3
3	Housing shortage in India	6
4	Housing and the City	6
5	Housing Finance	3
6	Introduction to Urban Renewal	3
7	Approaches to Urban Renewal	4
8	Key considerations in Urban Renewal	4
9	Case studies and examples	4
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Concepts and Definitions of Housing****6 periods**

MODULE OUTCOME: After successful completion of this module, a student will be able to define key concepts related to housing and elaborate on global and Indian housing and population scenario.

- 1.1 Shelter as a basic requirement, definitions related to settlement and housing.
- 1.2 Global and Indian population scenario.
- 1.3 Global and Indian housing scenario.
- 1.4 Most populous cities of the world and their housing situations.

## **Module 2 Social and Economic Dimensions of Housing**

**3 periods**

MODULE OUTCOME: After successful completion of this module, a student will be able to define housing as a social and economic agent for development, and discuss the role of housing in development of family and community well-being.

- 2.1 Development goals of housing — social, economic and civic.
- 2.2 Poverty, gender issues and elderly in housing.
- 2.3 World conferences and reports on development and housing.

## **Module 3 Housing Shortage in India**

**6 periods**

MODULE OUTCOME: After successful completion of this module, a student will be able to understand the housing shortage in India and initiatives to mitigate the same with historical perspective.

- 3.1 Efforts of mitigation of housing shortage during Planning Commission era.
- 3.2 Efforts of mitigation of housing shortage during NITI AAYOG era.

## **Module 4 Housing and the City**

**6 periods**

MODULE OUTCOME: After successful completion of this module, a student will be able to explain the interrelationship between the city and the housing sector, with emphasis on affordable housing sector and remedial measures.

- 4.1 National Housing Policy.
- 4.2 Legislations, codes and standards in housing.
- 4.3 Housing as a component of land use, residential density and development control.
- 4.4 Housing typologies.
- 4.5 Slums and housing for the poor.
- 4.6 Affordable housing; Land pooling technique; Site and services schemes.

## **Module 5 Housing Finance**

**3 periods**

MODULE OUTCOME: After successful completion of this module, a student will be able to comprehend the economic and financial aspects of housing including the idea of economy, taxation, budget, and finance related to housing.

- 5.1 Housing as a contributor in GDP.
- 5.2 Contribution of housing to micro and macro economy.
- 5.3 Housing taxation.
- 5.4 National budget and housing.

## **Module 6 Introduction to Urban Renewal**

**3 periods**

MODULE OUTCOME: After successful completion of this module, a student will be able to define urban renewal, understand its need and historical context.

- 6.1 Defining Urban Renewal, Urban redevelopment and urban regeneration.
- 6.2 Need for Urban Renewal: Urban decay, dilapidated buildings, and obsolete land uses.
- 6.3 Historical Context: Brief overview of urban renewal's evolution, including its role in addressing issues like urban blight and population shifts.

## **Module 7 Approaches to Urban Renewal**

**4 periods**

MODULE OUTCOME: After successful completion of this module, a student will have a fair idea about the physical, social, economic and environmental facets of urban renewal.

- 7.1 Physical Renewal: Demolition, reconstruction, and new construction.
- 7.2 Social Renewal: Addressing issues of poverty, crime, and social inequality.
- 7.3 Economic Renewal: Attracting investment, creating jobs, and improving the local economy.
- 7.4 Environmental Renewal: Addressing pollution, improving green spaces, and promoting sustainable development.

## **Module 8 Key considerations in Urban Renewal**

**4 periods**

MODULE OUTCOME: After successful completion of this module, a student will have a fair idea about the process of

community participation, financial mechanisms, legal frameworks, and project management aspects related to urban renewal.

- 8.1 Community Participation: Engaging residents and stakeholders in the planning process.
- 8.2 Financial Mechanisms: Funding sources, public-private partnerships, and investment strategies.
- 8.3 Legal Frameworks: Understanding eminent domain, zoning regulations, and other relevant laws.
- 8.4 Project Management: Planning, implementation, and monitoring of urban renewal projects.

## Module 9 Case studies and examples

4 periods

MODULE OUTCOME: Through the case studies of this module, a student will have a pragmatic idea about urban renewal.

- 9.1 Successful Urban Renewal Projects: Analysing examples of successful projects from around the world.
- 9.2 Challenges and Failures: Examining projects that faced difficulties or resulted in negative consequences.
- 9.3 Future Trends: Discussing emerging trends and technologies in urban renewal.

## LEARNING RESOURCES

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.
4. Colantio, A. and Dixon, T. (2011). Urban Regeneration and Social Sustainability, Willey-Blackwell: ISBN 978-1-4051-9419-8.
5. Wood, E. (2022). Introduction to Housing; Facts and Principles, Creative Media Partners, LLC.
6. Verne, V. (2019). Affordable Housing: Inclusive Cities, Oro Editions.
7. Jane Jacobs. (1961). *The Death and Life of Great American Cities*, Oxford University Press, New York.
8. Clark, J. (2017). *Urban Renewal, Community and Participation: Theory, Policy and Practice*, Springer.
9. Couch, C. (1990). *Urban Renewal – Theory and Practice*, Springer.
10. Maddison Wolfe (ed.) (2017). *Urban Planning and Renewal*, Nova Science Publishers: ISBN: 978-1-53612-419-4.
11. Colantio, A. and Dixon, T. (2011). *Urban Regeneration and Social Sustainability*, Willey-Blackwell: ISBN 978-1-4051-9419-8.
12. Kulshrestha, S. K. (2018). *Urban Renewal in India*, Sage: New Delhi.
13. Holwitt, P (2022). *Urban Renewal in India: Accommodating People, Ideas and Lifeworlds in Mumbai's Redeveloping Chawls*, Sunrise: New Delhi.



AP6221N

Urban Informatics

3 credits

**Course Category**

PSE

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

AP6172

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**COURSE OBJECTIVE**

1. To familiarize students with the fundamentals of Information based Decision Making systems and their applications in planning in three aspects; namely, spatial analysis, big data analytics and application of sensors and IoT based platforms in the planning context and establish data and information as the key resource for planning and designing of urban areas.
2. To enable students to organizing and managing the dataset, accessing and visualizing it and generating meaningful insights and knowledge for providing planning solutions.
3. To introduce Urban Simulation and Predictive Modelling techniques in Planning and enable students have hands on experience through tutorials and assignments.

**COURSE OUTCOME**

By the end of the course, students will be able to:

- (i) design and implement a spatial database for urban data,
- (ii) gain hands-on skills in spatial database design and data processing in planning
- (iii) carry out urban simulation and predictive modelling techniques, and
- (iv) develop interactive dashboards and participatory mapping applications.

**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	PERIODS
1.	Introduction to Planning Informatics:	6
2.	Fundamentals of Database	6
3.	Integrating data with Interfaces	6
4.	Data Visualization	6
5.	Planning Oriented Programming	6
6.	Urban Simulation Models	9
	Term Paper/ Teacher's Assessment	3

**DETAIL COURSE CONTENT****Module 1 Introduction to Planning Informatics:****6 periods****MODULE OUTCOME :**

1. Learn the scope and relevance of informatics in contemporary urban planning.
2. To be able to identify key data sources, types, and formats used in planning decisions.
3. Understand the components of different information systems as components of smart city platforms.
4. Learn to get solutions using data-driven planning.

- **Theory:** Open Data technologies in Informatics – Applications of Informatics in Planning – Challenges of Planning Informatics: Theoretical, Technological, Methodological, and Epistemological.
- **Tutorial:** Software environments (QGIS, PostgreSQL/ PostGIS, Python)

## Module 2 Fundamentals of Database

6 periods

### MODULE OUTCOME:

1. Understand the structure and components of relational and spatial databases.
  2. Design logical data models for urban datasets and learn query operations on planning databases using SQL.
  3. Evaluate database structures for scalability, and usability in planning contexts.
- **Theory:** Database management systems – Relational database management – Database normalization
  - **Tutorial:** Open Data sources – Importing Data – Structured Query Language – MS Access software

## Module 3 Integrating data with Interfaces

6 periods

### MODULE OUTCOME:

1. Learn architecture and components of data-driven planning interfaces.
  2. Connect spatial databases and urban datasets to visual interfaces and display urban data.
  3. Design interfaces for specific planning use-cases (e.g., land-use monitoring, mobility tracking).
  4. Learn interactive tools for planners, citizens, and stakeholders.
- **Theory:** Database Integration with GIS – Querying in GIS – GIS based analysis – Proximity and overlay analysis – Weighted Overlay – Network analysis – Application Programming Interface (API)
  - **Tutorial:** Spatial statistics and introduction to other GIS based analysis.

## Module 4 Data Visualization

6 periods

### MODULE OUTCOME:

1. Learn cartographic design principles for clarity and legibility.
  2. Create thematic maps (choropleths, dot-density, heat maps) to reveal urban patterns.
  3. Learn developing interactive visualizations and dashboards for planning.
- **Theory:** Objective of Data Visualization – Integrating spatial and non-spatial charts (e.g. time series, bar charts) – Application of cartographic design principles for Map clarity and legibility – Creating thematic maps to present urban data – Developing interactive visualizations and dashboards using web frameworks.
  - **Tutorial:** Static Thematic Maps with GeoPandas & Matplotlib – Dashboard Design for Planners

## Module 5 Planning Oriented Programming

6 periods

### MODULE OUTCOME:

1. Learn to use Python scripts to ingest, clean, and manipulate large urban datasets.
  2. Learn geospatial libraries (e.g. GeoPandas) for spatial operations.
  3. Apply statistical and machine-learning methods to urban planning problems and generate interactive web visualizations.
- **Theory:** Working with python – Data handling in Pandas – Geospatial Data Handling – Automation and Reproducibility.
  - **Tutorial:** Dashboard Design for planners.

## Module 6 Urban Simulation Models

9 periods

### MODULE OUTCOME:

1. Learn applications of major urban simulation paradigms and select an appropriate one for a given planning problem.
2. Learn to formulate model structure and parameter identification for planning problems, like urban growth, transportation, population dynamics etc.
3. Learn to use open-source simulation models tools and libraries and validating outputs against historical or observed data.

- **Theory:** Cellular Automata (CA) for land use change – Agent-Based Models (ABM) of urban actors – Transportation and mobility simulations – Model validation and sensitivity analysis.
- **Tutorial:** Building a CA land use model in Python – Traffic and transportation simulation – Dynamics of population-housing interaction

#### LEARNING RESOURCES

1. Batty, M. The New Science of Cities, MIT Press.
  2. Longley, P. A., Goodchild, M. F., Maguire, D. J., & Rhind, D. W. Geographic Information Systems and Science (4th Edition) Wiley.
  3. O'Sullivan, D., & Unwin, D. Geographic Information Analysis (2nd Edition) Wiley.
  4. Townsend, A. M. Smart Cities: Big Data, Civic Hackers, and the Quest for a New Utopia
  5. W.W. Norton & Company.
  6. De Smith, M. J., Goodchild, M. F., & Longley, P. A. Geospatial Analysis: A Comprehensive Guide to Principles, Techniques and Software Tools Winchelsea Press.
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AP6222N | Climate Change and Human Settlements | 3 credits

<b>Course Category</b> PSE	<b>Contact periods</b> 3 lectures per week	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

### 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) develop 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	PERIODS
1	Understanding Climate Change	6
2	Climate Change: Mitigation and Adaptation Linkages	9
3	Use of Scenarios for Climate Change Adaptation	6
4	Climate Change and Coastal Settlements	6
5	Planning for Green Infrastructure	6
6	Climate Change Mitigation and Adaptation in India	3
7	Funding Provisions to support Adaptation	3
	Term Paper/ Teachers' Assessment	3

### DETAIL COURSE CONTENT

#### Module 1 Understanding Climate Change

6 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Describe greenhouse gases, Anthropogenic causes, Carbon Cycle, Global Warming, Urban Heat Islands.
2. Explain international and national Efforts, UNFCC, Conference of Parties, Kyoto Protocol, IPCC, Intended Nationally Determined Contributions (INDC), Global Environment Facility (GFC), Clean Development Mechanism.
3. Understand the role of human Settlements in climate change, contribution to GHGs, sectoral contributions, sensitivity and vulnerability of different sectors.

- 1.1 Greenhouse gases, Anthropogenic causes, Carbon Cycle, Global Warming, Urban Heat Islands
- 1.2 International and national Efforts, UNFCCC, 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**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Recognize mitigation and adaptation strategies and linkages, low carbon Settlements.
  2. Understand mitigation and adaptation options in cities of developed and developing nations, principles for planning of mitigation and adaptation.
  3. Analyse urban form and climate change.
- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Recognize the Use of future scenarios.
  2. Understand the synergy of Climate change and socio-economic scenarios.
  3. Analyse the barriers to scenario use and identifying appropriate interventions.
- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Understand climate change and human settlements in low elevation coastal zones
  2. Estimate population and human settlement patterns in low elevation coastal zones.
  3. Understand adaptation to rising sea levels and consequences.
- 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**

**6 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Recognizing the role of green infrastructure in adapting to climate change.
  2. Quantification of environmental functions of green infrastructure.
  3. Climate adaptation strategies and programmes of green infrastructure.
- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Understanding India's urban transformation and climate change risk exposure.
  2. Explaining National Action Plan on Climate Change, Sustainable Habitat Mission, gaps
  3. Describing mitigation and adaptation Agenda for Indian cities.
- 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**

**3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to —

- 1. Explaining the funding options for adaptation under UNFCC.
  - 2. Explaining the role of Official Development Assistance (ODA) in funding adaptation.
  - 3. Understanding access to adaptation finance by urban stakeholders.
- 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

### **LEARNING RESOURCES**

- 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.
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AP6223N | Rural Development and Planning | 3 credits

**Course Category**

PSE

**Contact periods**

3 lectures per week

**Full Marks**

100

**Pre-requisite Courses**

Nil

**Co-requisite Courses**

Nil

**Progressive Courses**

Nil

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**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	PERIODS
1	Introduction to rural development and planning	6
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****6 periods**

MODULE OUTCOME: Understand the background, concepts, and methodology for rural planning, especially in Indian context.

- 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**

MODULE OUTCOME: Understand rural settlement, rural activities, and indicators of development.

- 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**

MODULE OUTCOME: Understand the theories and programs for rural economic development.

- 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**

MODULE OUTCOME: Understand the theories and programs for rural social and environmental development.

- 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**

MODULE OUTCOME: Understand the theories and programs for rural infrastructure development.

- 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**

MODULE OUTCOME: Understand various rural institutional frameworks and financing options.

- 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**

MODULE OUTCOME: Understand various approaches related to the integration of rural and urban areas.

- 7.1 Planned rural-urban development
- 7.2 Regional planning approach to rural development.

**LEARNING RESOURCES**

- 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.



AP6271N

Planning Studio II

8 credits

**Course Category**

PC

**Contact periods**

12 studio classes per week

**Full Marks**

400

**Pre-requisite Courses**

AP6171N

**Co-requisite Courses**

AP6291N

**Progressive Courses**

AP7171N and AP7172N

**Course Duration**

14 weeks

**Course offering Department**

Architecture and Planning

**Codes / Standards**

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**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.

#### **LEARNING RESOURCES**

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.
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AP6291N | Planning Viva-Voce II | 2 credits

<b>Course Category</b> O	<b>Contact periods</b> End Semester Examination only	<b>Full Marks</b> 50
<b>Pre-requisite Courses</b> AP6171N & AP6191N	<b>Co-requisite Courses</b> AP6271N	<b>Progressive Courses</b> Nil
<b>Course Duration</b> —	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

#### **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)”.

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### Open Elective Course offered for Students of Other Departments (2<sup>nd</sup> Sem.)

AP6261N	Smart City Planning	3 credits
<b>Course Category</b> OE	<b>Contact periods</b> 3 lectures per week	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

#### 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	6
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	3
7	Smart to wise transformation	3
	Term Paper/ Teachers' Assessment	3

#### DETAIL COURSE CONTENT

##### Module 1 Understanding smart cities

3 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to —

1. Understand conventional vs. smart city.
  2. Understand the various definitions of smart cities in the context of developed and developing nations.
  3. Recognize drivers and agencies of smart cities.
- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand various dimensions of smart living, smart mobility, smart energy, smart environment, smart economy, smart infrastructure, smart governance, smart citizens.

- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

- 1. Understand the differences of top-down and technology-centric approaches and bottom-up and citizen enabling approaches.
- 2. Understand the standards and performance benchmarks, practice codes.
- 3.1 Top-down and technology-centric approaches.
- 3.2 Bottom-up and citizen enabling approaches.
- 3.3 Standard and performance benchmarks, practice codes.

**Module 4    Smart city development in India**

**9 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

- 1. Understand the Smart Cities Mission Guidelines and smart solutions, the city selection process.
- 2. Analyse smart city planning and smart city projects: Pan city solutions, Area-based development.
- 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**

MODULE OUTCOME: On successful completion of this module, the students will be able to -

- 1. Recognize the significance of multi-stakeholder participation.
- 2. Understand the role of Special Purpose Agencies.
- 3. Understand the contradictions in governance.
- 5.1 Multi-stakeholder participation
- 5.2 Special Purpose Agencies
- 5.3 Contradictions in governance

**Module 6    Funding of smart cities**

**3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to understand the Innovative financing and land management tools.

Innovative financing and land management tools.

**Module 7    Smart to wise transformation**

**3 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to –

- 1. Understand the constraints of technology centric approach.

2. Recognize the advantages of the citizen-enabling approach and attributes of the paradigm shift from smart to wise cities.

7.1 Constraints of technology centric approach

7.2 Advantages of citizen enabling approach

7.3 Attributes of paradigm shift from smart to wise

#### **LEARNING RESOURCES**

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>).
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**Second Year First Semester (3<sup>rd</sup> Sem.)**

AP7171N | Detailed Project Report | 4 credits

<b>Course Category</b> PC	<b>Contact periods</b> 6 studio classes per week	<b>Full Marks</b> 200
<b>Pre-requisite Courses</b> AP6271	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**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.

**MAJOR SECTIONS OF THE COURSE**

SECTION	TOPIC	PERIODS
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.

### **LEARNING RESOURCES**

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.
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AP7172N | Planning Thesis - I | 6 credits

<b>Course Category</b> P	<b>Contact periods</b> 9 studio classes per week	<b>Full Marks</b> 300
<b>Pre-requisite Courses</b> AP6271N	<b>Co-requisite Courses</b> AP7192N	<b>Progressive Courses</b> AP7271N
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

### 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, 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" (AP7172N) is the studio course, the initial half of the whole endeavour, is called thesis preparation course 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 (AP7271N)".

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.

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 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, preferably one of whom is common.

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 Five Examiners consisting of the respective Supervisor/s, the Thesis Coordinator as

one Internal Examiner common for all candidates, and three External Examiners nominated by the DPGC, preferably one of whom is the common External Examiner 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.

### LEARNING RESOURCES

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*, (2<sup>nd</sup> Ed.), Singapore, Pearson Education.
17. Dawson, Catherine, 2002, *Practical Research Methods*, New Delhi, UBS Publishers' Distributors.

AP7191N | Internship and Viva-Voce | 2 credits

<b>Course Category</b> I	<b>Contact periods</b> End Semester Examination Only	<b>Full Marks</b> 50
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 6 – 8 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

### 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 the Department 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 six weeks and maximum eight 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 Internship in the form of an "Internship 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 "Internship 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.

## AP7192N | Planning Thesis Viva-Voce - I | 2 credits

<b>Course Category</b> O	<b>Contact periods</b> End Semester Examination only	<b>Full Marks</b> 50
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> AP7172N	<b>Progressive Courses</b> Nil
<b>Course Duration</b> —	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**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 (AP7172N)" 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 (AP7172N)" 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 Five Examiners* consisting of the respective Supervisor/s, the Thesis Coordinator as one Internal Examiner common for all candidates, and three External Examiners nominated by the DPGC, preferably one of whom is a common External Examiner 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 academic calendar. The Board cannot extend a due date. If a thesis is not completed by the due date, a letter grade "I" will be awarded.

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

## AP7131N | Urban Governance and Finance | 3 credits

<b>Course Category</b> VAC	<b>Contact periods</b> 3 lectures per week	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> Nil	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**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	PERIODS
1	Introduction to Urban Governance	7
2	Urban Governance and Urbanization	9
3	Municipal Finance	7
4	Partnership Approaches in Urban Governance	7
5	Finance Management in Urban Governance	9
	Term Paper/ Teachers' Assessment	3

**DETAIL COURSE CONTENT****Module 1 Introduction to Urban Governance****7 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to conceive the fundamentals of governance and its indicators.

- 1.1 Basic Concepts of Governance Basic concepts of governance, government, management, and administration.
- 1.2 Principles evolution, practice and processes of urban governance.
- 1.3 Determinants and indicators of good governance.
- 1.4 Citizen's charter and other instruments
- 1.5 Decision making processes in urban governance.

**Module 2 Urban Governance and Urbanization****9 periods**

MODULE OUTCOME: On successful completion of this module, the students will be able to conceive the

process of urbanisation and its interplay with urban governance, development conflict and efforts in poverty amelioration, and also presents some of the best practices of urban governance in the world.

- 2.1 Processes of urbanization and control measures, suburbanization, counter-urbanization, gentrification, acculturation.
- 2.2 Developmental conflicts: Macro, Meso and Micro issues.
- 2.3 Impact of globalization and economic reforms, GDP .
- 2.4 Poverty – measure and efforts to ameliorate poverty in India, Poverty line.
- 2.5 Governance in sustainable development, Development goals.
- 2.6 Best practices in Urban Governance.

### Module 3 Municipal Finance

7 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to describe details of municipal finance systems.

- 3.1 Municipal revenue and its components.
- 3.2 Municipal expenditure and its components.
- 3.3 Revenue balance, revenue surplus, fiscal balance and resource gap.

### Module 4 Partnership Approaches in Urban Governance

7 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to elaborate on the public private partnership approaches.

- 4.1 Types of Partnership Approaches.
- 4.2 Privatization of Civic Services.
- 4.3 Public Private Partnership Mechanisms.
- 4.4 Types of Contracts and Ownerships - BOT, BOOT, BOLT etc.

### Module 5 Finance Management in Urban Governance

9 periods

MODULE OUTCOME: On successful completion of this module, the students will be able to conceive various financial management models.

- 5.1 Enterprise challenge fund.
- 5.2 Financial Operating Plan.
- 5.3 City Corporate plan.
- 5.4 Resources based on achievement of urban reforms and indices.
- 5.5 Institutional capacity building.
- 5.6 Management process, accounting and budgeting.

### LEARNING RESOURCES

1. Rao, G. (2002). *Development, Poverty and Fiscal Policy – Decentralization of Institutions*, Oxford University Press, New York.
2. Harper, M. (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. Tyagi, B.P. (1997). *Public Finance*, Jai Prakash Nath, Meerut.
6. Thavaraj, M.J.K. (1996). *Financial Administration in India*, S. Chand & Sons, Delhi
7. Khan, M.Y., and Jain, P.K. (1982). *Financial Management*, Tata McGraw Hill, New Delhi
8. Brotchie, Batty, J. M. et al. (eds) (1995). *Cities in Competition: Productive and Sustainable Cities for the 21st Century*, Longman, Melbourne.
9. Hall, P. and Pfeiffer, U. (2000). *Urban Future 21*, E & FN Spon, New York.

**Second Year Second Semester (4<sup>th</sup> Sem.)**

AP7271N | Planning Thesis - II | 12 credits

<b>Course Category</b> P	<b>Contact periods</b> 18 studio classes per week	<b>Full Marks</b> 300
<b>Pre-requisite Courses</b> AP7172N	<b>Co-requisite Courses</b> Nil	<b>Progressive Courses</b> AP7291N and AP7292N
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

**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 (AP7172N)".

**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**

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 (AP7172N)" 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 four examiners* consisting of the respective Supervisor/s, the Thesis Coordinator as one Internal Examiner common for all candidates, and two External Examiner nominated by the DPGC, preferably one of whom is common for both the Interim Reviews.

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

### LEARNING RESOURCES

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.

AP7291N | Planning Thesis Report | 8 credits

<b>Course Category</b> O	<b>Contact periods</b> End Semester Examination Only	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> AP7271N	<b>Co-requisite Courses</b> AP7292N	<b>Progressive Courses</b> Nil
<b>Course Duration</b> —	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

### COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of writing 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 etc.

### COURSE OUTCOME

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

- (i) prepare a synopsis of the research/project; and,
- (ii) document the whole exercise in the form of a technical report.

### 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 approved by the respective Supervisor/s, in prescribed format for publication/submission.

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).

### 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 (AP7292N)”, for examination.

The Board of Examiners consists of at least three External Examiners nominated by the DPGC, preferably one of whom is the common External Examiner 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.

AP7292N | Planning Thesis Viva-Voce - II | 4 credits

<b>Course Category</b> O	<b>Contact periods</b> End Semester Examination Only	<b>Full Marks</b> 100
<b>Pre-requisite Courses</b> AP7271N	<b>Co-requisite Courses</b> AP7291N	<b>Progressive Courses</b> Nil
<b>Course Duration</b> 14 weeks	<b>Course offering Department</b> Architecture and Planning	<b>Codes / Standards</b> —

### COURSE OBJECTIVE

The objective of this course is to develop the students with the skill of presentation and oral communication of the “Planning Thesis Report (AP7291N)” in the form of seminar and defend own views on the Thesis work.

### 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 (AP7271N)” and defend own views about the Thesis Work before the Board of Examiners.

### COURSE EVALUATION

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 AP7291N*, and defend the same.

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 academic 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.

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