

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR



**Department of Architecture and Planning**

**M.Plan Syllabus and Scheme**

## Table of Contents

1. 1 <sup>st</sup> Semester .....	03
2. 2 <sup>nd</sup> Semester .....	11
3. 3 <sup>rd</sup> Semester .....	17
4. 4 <sup>th</sup> Semester .....	21
5. Program Electives for Odd Semester.....	23
6. Program Electives for Even Semester.....	34

## 1<sup>st</sup> Semester

<b>S.No.</b>	<b>Course Code</b>	<b>Course Title</b>
1	21ARP602	Planning Studio-I
2	21ART601	Planning History and Theory
3	21ART604	Urban Infrastructure Planning
4	21ART603	Planning Techniques and Statistical Analysis
5		Programme Elective I
6		Programme Elective II

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ARP602

Course Name : Planning Studio -I

Credits : 4 L - 0 T - 0 P - 0

Course Type : Core

Prerequisites : none;

## Course Contents

**Planning At Project Scale:** Study and Design of lay out for an Industrial estate /Commercial or Mix Use Street/Institutional Campus/ Township/ Logistic Hub/Transit Hub, etc. on Greenfield/Brownfield site of about 10 to 20 hectares land.

Study of relevant statutes, Development Rules & Regulations, Policies, Norms and Standards, Site analysis on standard scale, clearly indicating: development context, physical linkages, all physical features, infrastructural facilities and landscape features, potentials and problems of the site. Presentation of relevant case studies of similar projects.

Preparation of site plan showing location of buildings, vehicular and pedestrian access, parking, open space, network services trunk sewer, main waterlines and refuse collection points, etc. and other activities or facilities within the area. The end result of the process is a plan for the site both in written and graphic format. It describes the planning process, presents an efficient, economic and functional plan and provides direction for implementing the plan.

**Area Development Plan :** Planning for an identified area in master plan such as: Riverfront, Lakefront, historic core, abandoned Industrial area, District/sub-district commercial centre, heritage zone, Handicraft cluster, Recreation zone, Eco-sensitive zone, neighborhood planning, etc. on site of about 50 to 100 hectares land

Area appreciation study at sub city level: study of master plan proposals, Key challenges, planning and design considerations, site characteristics and functionality of space, understanding of linkages with surrounding land uses and preparation of Area profile.

Preparation of Land use plan showing location of buildings, vehicular and pedestrian access, parking, open space, network services trunk sewer, main waterlines and refuse collection points, etc. and other activities or facilities within the area. The end result of the process is a plan for the area both in written and graphic format. It describes the planning process, presents an efficient, economic and functional plan and provides direction for implementing the plan.

## **Recommended Readings**

Reference book-

- Government of India (2015), Urban and Regional Development Plans Formulation and Implementation Guidelines (URDPFI) Vol.1, Town and Country Planning Organization, Ministry of Urban Development, New Delhi
- J. Paul Guyer (2009) An Introduction to Area Development Plans, PDH Library course, California, USA
- Ministry of Housing, South Africa (2000) Guidelines for Human settlement Planning and Design, Vol.1 and Vol.II
- Department of Planning and Land Use Division (2002) A Guide for Developing Neighborhood Plan, Winnipeg, Manitoba, Canada

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART601

Course Name : Planning History and Theory

Credits : 3 L - 2 T - 1 P - 0

Course Type : Core

Prerequisites : none

## Course Contents

### Unit I

Development of planning thought and principles from that of ancient times; Settlement types and patterns; ancient medieval renaissance and industrial age, and its relevance in modern context, historical determinants, mobility, socio –cultural beliefs, climate, technology, political power, geographical location etc. Definitions of key terms in planning –City and region, rural-urban fringe, urbanization and impact on planning, planning process, sub fields within planning –housing, transportation, environmental planning, regional planning, etc. Impacts of Industrial revolution on town planning and regional planning. Formation of metropolitan areas; socio-economic impacts of growth of population; rural-urban migration. Planning concept in India, ancient, Pre independence and post-independence development.

### Unit II

Contribution of individuals to city planning: Patrick Geddes, Lewis Mumford, Le Corbusier, Frank Lloyd Wright, C.A. Doxiadis, Clarence Perry, Peter Hall, etc. Ekistics, Models of urban structure, Systems approach and physical planning. Mixed scanning and approach to land use planning.

Contemporary developments in planning in India; Emerging Planning Concepts: inclusive city, safe city, Green City, Shadow city, Sustainable City, Resilient City, Low Carbon City, Smart city etc.

### Unit III

Aims and objectives of physical planning, levels of planning in India and their inter-relationships. Physical nature and characteristics of urban environment and its components. Land uses –physical structure and relationship of parts of the city, planning standards, site layout and development, zoning and density control.

Development plan, types, scope and objectives. Local /area and regional levels. Models of planning process, components of settlements. Introduction to spatial planning at regional level. Choice theory and advocacy planning and their relevance. Action planning and its application in Indian context. Comprehensive Planning.

## Recommended Readings

Reference books:-

- Arthur B. Gallion (2003) The Urban Pattern 5th edition, CBS Publishers & Distributors.
- AEJ Morris (2013) History of Urban Form Before the Industrial Revolution

- Urban and Regional Development Plans Formulation & Implementation Guidelines (2014) Ministry of Urban Affairs & Employment, Govt. of India, New Delhi
- Aidan Southall (1998) The City in Time and Space Cambridge University Press
- Le Corbusier Courier Corporation (1987) The City of To-morrow and Its Planning
- John M. Levy (2011) Planning theory, Contemporary Urban Planning, 9th Ed., Upper Saddle River, NJ
- Ebenezer Howard (1965) Garden Cities of Tomorrow. London: Faber and Faber
- Ernest R. Alexander (1992), Approaches to Planning: Introducing Current Planning Theories, Concepts and Issues. Philadelphia: Gordon and Breach Science Publishers
- R. Ramachandran (1991), Urbanization and urban systems in India, Oxford University Press
- Peter Hall, Mark Tewdwr-Jones (2010 ), Urban & Regional Planning, Routledge

Online/E resources:-

Journals

- Journal of Planning History, Sage Publications.
- Journal of Urban History, Sage Publications.
- Planning Theory, Sage Publications.
- Journal of Planning Education and Research (JPER), Sage Publications.
- Landscape and Urban Planning, Elsevier Publications.
- Planning Theory and Practice, Taylor and Francis Publications.

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART604

---

Course Name : Urban Infrastructure Planning

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Core  
Prerequisites : none

## Course Contents

Unit I- Concepts and theories of design and operation of urban services and network systems - water supply, sewage disposal, drainage refuse collection, recycling and disposal, electricity network and telephone network, health care and education, police protection and fire fighting, general welfare. Study of relevant codes, norms and by laws. Operational planning for emergency evacuation in urban areas.

Unit II- The network and service systems - components, inter relationship requirements and need of appropriate technology. Effects of density, land use and urban structure on design of network and service systems.

Unit III- Cost recovery, economics of urban service system and networks.

Unit IV- Infrastructure finance concepts and principles of emerging urban infrastructure finance and management issues such as BOO, BOT, BOOT etc.

## Recommended Readings

Text Books:-

- Urban Infrastructure: Finance and Management, Kath Wellman, Marcus Spiller, 23 August 2012
- Solving Urban Infrastructure Problems Using Smart City Technologies: Handbook on Planning, Design, Development, and Regulation, John R. Vacca, 2020
- Infrastructure Planning, Engineering, and Economics, Second Edition, Alvin S. Goodman, 2015

Reference books:-

- Ghai, D. P.; Khan A. R., The basic need approach to development, Pub. by ILO, Geneva, 1977.
- Bijlani, H.U.; Rao, P.S.N., Water supply and sanitation in India, Pub. by Oxford and IBH Publishing, New Delhi, 1990.
- Lyer, R.R., Towards Water Wisdom - Limits, Justice, Harmony, Pub. by Sage Publications, New Delhi, 2007.
- Manual on Sewerage and Sewage Treatment, Ed. I & II. 601, Pub. by CPHEEO, New Delhi, 1980.
- Bandela, N.N; Tare, D.G., Municipal solid waste management, Pub. by B.R. Publishing, 2009.

Online/E resources:-

- <https://www.classcentral.com/course/swayam-infrastructure-planning-and-managements-12925>
- <https://online-learning.tudelft.nl/courses/adaptive-planning-for-infrastructure-and-water-management/>
- <https://iglus.org/management-of-urban-infrastructures-mooc/>



# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART603

Course Name : Planning Techniques and Statistical Analysis

Credits : 3      L - 2      T - 1      P - 0

Course Type : Core

Prerequisites : none

## Course Contents

### Unit 1

Introduction to various planning techniques used since historic times. Methods of identifying urban and regional problems, setting of goals, objectives and priorities. Techniques for development control, land values and density pattern. Threshold analysis. Types of Plans. Hierarchy of plans, Contents of base maps at various scales, basic disciplines of maps . Population projection methods.

### Unit 2

Collection of Primary and Secondary Sources of data, sources of various data in India, Estimation of Parameters. Design of Experiments, Basic quantitative methods in collecting data, analysis, projecting and presenting data on various land uses.Types of Measurement scale and their application, Survey Design.

### Unit 3

Techniques of conducting surveys, data requirement, Various methods for survey and research, methodology of conducting survey for urban Planning level. Sources of primary and secondary data, questionnaire design, sampling techniques types of socio – economic surveys. Simple Random Sample, Systematic Sample, Stratified Random Sample & Multi-stage sampling. Determining size of the sample – Practical Considerations in sampling and sample size. Methods of Studying Variation, Average Deviation, Standard Deviation, etc. Sampling: Purpose and Principle of Sampling, Methods of Sampling, Size of Sample, Merits and Limitations of sampling, Sampling Distribution, etc.

### Unit 4

Data Presentation: Classification of Data, Tabulation of Data, Charting of Data, Choice of Suitable Diagrams, etc. Use of Excel Software for Analyzing Data.Applications of Features of Excel for statistical analysis. Other Statistical Analysis Software.

### Unit 5

Introduction to Statistical Methods Definition, Types of data, properties and measures, characteristics of a Good Average, Arithmetic Mean, Median, Mode, Geometric Mean etc. Application of vital statistics in Spatial Planning i.e. Cluster and factor analysis, Correlation, and Regression Analysis, etc.

## Recommended Readings

Reference books:-

- Kothari, C.R, Research Methodology – Methods and Techniques, Pub. by New age international Publishers,1990.
- Bracken, I., Urban Planning Methods: Research and Policy Analysis, Pub. by Routledge, 2007.

- Shen, Z., Geospatial Techniques in Urban Planning, Pub. by Springer, 2007.
- Ansari, J.H.; Mahavir, Reading Material on Planning techniques, Pub. by ITPI, 2000.
- Architectural Research Methods –Linda Groat
- Research Methodology –R. Panneerselvam

Web References:

- 1.[https://www.researchgate.net/publication/320346875\\_Quantitative\\_Research\\_Methods\\_A\\_Synopsis\\_Approach](https://www.researchgate.net/publication/320346875_Quantitative_Research_Methods_A_Synopsis_Approach)
- 2.<https://www.youtube.com/watch?v=pqnudWMPApI&list=PLFNqsGZ30wMPTo-8TII2ojYdbJ9nZ819a>

## 2<sup>nd</sup> Semester

<b>S.No.</b>	<b>Course Code</b>	<b>Course Title</b>
1	21ARP605	Planning Studio-II
2	21ART607	Urban Laws, Governance, and Management
3	21ART608	Urban Transportation Planning
4	21ART606	Research Methodology for Planners
5		Programme Elective III
6		Programme Elective IV
7		Open Elective

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ARP605

---

Course Name : Planning Studio-II

---

Credits : 4      L - 0      T - 0      P - 8  
Course Type : Core  
Prerequisites : none

## Course Contents

### UNITI: MASTER PLAN

Study and Planning of Class-II towns/Class-I town up to 0.5 million population

Review of existing master plan, Data collection, Preparation of Detailed Base Map on GIS platform along with ground verification, Superimposition of Khasra Map, UIT/ Development Authority Boundary/ Municipal Boundary, Ward Map on the Base Map; Listing and mapping of deviations and variations with the master plan proposals, Physical Survey, Socio-Economic Survey, Transportation survey, Future projections, Preparation of existing Land Use map, Delineation of Planning Zones, Proposed Land Use Plan for the horizon year and preparation of Master Plan Proposals. The end result of the process is a development plan for the city both in written and graphic format. It describes the planning process, presents an efficient, economic and functional plan and provides direction for implementing the plan.

### Unit II- ZONAL DEVELOPMENT PLAN

Detailing of the Master Plan Proposals at Zonal Level

Key challenges, planning and design considerations, zone characteristics and functionality of zone, understanding of linkages with surrounding zones and preparation of Zonal Development Plan. The end result of the process is a Land Use plan for the zone both in written and graphic format. It describes the planning process, presents an efficient, economic and functional plan and provides direction for implementing the plan.

## Recommended Readings

- Government of India (2015), Urban and Regional Development Plans Formulation and Implementation Guidelines (URDPFI) Vol.1, Town and Country Planning Organization, Ministry of Urban Development, New Delhi
- Government of India (2016), Formulation of GIS Based Master Plan for AMRUT cities, Town and Country Planning Organization, Ministry of Urban Development, New Delhi
- Government of India (2018), National Urban Policy Framework, Ministry of Housing and Urban affairs, New Delhi
- UN-HABITAT(2009), Planning sustainable cities-Policy Directions
- UN-HABITAT(2010), Planning sustainable cities-UN-HABITAT Practices and Perspectives
- Government of Rajasthan (2009) Zonal Development Plan Guidelines
- Ministry of Housing, South Africa (2000) Guidelines for Human settlement Planning and Design, Vol.1 and Vol.II

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART607

Course Name : Urban Laws, Governance and Management

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Core  
Prerequisites : none

## Course Contents

### Unit I: URBAN LAWS

National Legislative Framework and distribution of subjects, 73rd and 74th Constitutional Amendment act, Central Government and State Government Acts/ Rules : Land Acquisition Act, Model Town and Country Planning Act, The slum Areas (Improvement & Clearance) Act, Environment protection and pollution prevention Acts, Land Revenue Act, Municipalities Act, Panchayati Raj Act, Development Authority Act, Urban Improvement Act, Housing Board Act

### Unit II: URBAN GOVERNANCE

Institutions for urban governance :Urban Local Bodies, Parastatal organizations, Single purpose Agencies, NGOs, CBOs and RWAs; Functional and Fiscal Domain of ULBs and Development Authorities; Intergovernmental Fiscal Transfer, Central Finance Commission, Niti Ayog, State Finance Commission, State planning Commission, Financial Intermediaries, Channels of Finance flow, Institutional Responsibility matrix for delivery of urban infrastructure and services

### Unit III- URBAN MANAGEMENT

Urban development Inputs: Population, Physical resources, Human Resources, Financial resources, urban planning and development regulations; urban processes: markets, industries, trade and commerce, institutions, transportation, communication, and housing. Urban output: Quality of Life and Quality of Environment. Urban Benchmarking, and other concepts, themes and practices in urban management

## Recommended Readings

- National Urban Policy Framework (2018), Ministry of Housing and Urban Affairs, GOI
- WWF-India (2010)The alternative Urban Futures Report: Urbanisation & Sustainability In India: An Interdependent Agenda
- Runming Yao (Ed.)( 2013) The Design and Management of Sustainable Built Environments, Springer-Verlag, UK
- Isher Judge Ahluwalia (2011) India Infrastructure Report
- State of World Cities and other Reports by UNCHS
- Working papers from NIUA, NIPFP, and ASCI
- India Infrastructure Reports by 3i Network
- India Code: Digital Repository of Central and State Acts
- Leitmann Josef (1993): Rapid Urban Environmental Assessment: toward environmental management in cities of the Developing world, Impact Assessment, 11:3, 225-260
- Journal of Urban management, Cities Journal, Elsevier

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART608

Course Name : Urban Transportation Planning

Credits : 3      L - 2      T - 1      P - 0

Course Type : Core

Prerequisites : none

## Course Contents

Unit I- Evaluation of urban structure: Transport system, infrastructure and management, transport systems and their types, design and operating characteristics, urban road hierarchy, planning, and management criteria for road and junction improvements, arterial improvement techniques.

Unit II- Transport survey and studies: study area definitions, survey and their types, sampling methods, survey techniques, programming and processing of travel data, analysis and interpretation of traffic studies

Unit III- Transportation Planning Process and analytical techniques: Techniques for urban structures analysis, Urban travel characteristics, urban transport interrelationship, transport planning process and modeling, scenario building and their analysis

Unit IV- Traffic management, mass transit system: Problems and prospects, tramways, trolley buses, LRS and RTS operation characteristics, planning transit systems. Management of transport systems: existing organizational and legal framework, traffic and environmental management techniques. Review of existing traffic management schemes in Indian cities

Unit V- Transport and environment: Traffic noise, factor affecting noise statement measures, standards, air pollution standards, traffic safety, accident reporting and recording systems, factors affecting road safety , transport planning for target groups, children, adults , handicapped and women . Norms and guide lines for highway landscape, street lighting types, standards and design considerations

Unit VI- Economics evaluation: pricing and funding of transport services and systems, economic appraisal of highway and transport projects. Techniques for estimating direct and indirect road user costs and benefit value of time

## **Recommended Readings**

Text Books:- (Title, Authors, Publisher & Year)

- Urban Transportation Planning, Operation and Management ( D. Johnson Victor, S. Ponnuswamy, Tata McGraw-Hill Education, 2012)
- Concepts in Urban Transportation Planning ( Mintesnot G. Woldeamanuel, McFarland, Incorporated, Publishers, 2016)

Reference books:-

- Meyer, M. D.; Miller, E. J., Urban Transportation Planning: A Decision-Oriented Approach, Pub. by McGraw-Hill, 2001.
- Black, A., Urban Mass Transportation Planning, Pub. by McGraw-Hill, 1995.
- Weiner, E., Urban transportation planning in the United States: An historical overview, Technical Report, 1986.
- Indian Roads Congress Codes.

Online/E resources:-

- <https://ocw.mit.edu/courses/civil-and-environmental-engineering/1-252j-urban-transportation-planning-fall-2016/>
- <https://www.coursera.org/lecture/managing-urban-infrastructures-1/4-1-introduction-to-urban-transportation-systems-efn6E>
- <https://olc.worldbank.org/content/integrated-urban-transport-planning-self-paced>

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART606

---

Course Name : Research Methodology for Planners

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Core  
Prerequisites : none

## Course Contents

Introduction to Research: Importance and scope; Areas of research and types of research in Planning and Architecture; Research process- identification of problem, formulation of research questions and hypothesis, collection of evidences and data analysis; Methods of inquiry. Formulation of hypothesis, writing aim, objectives, scope and limitations,

Research Design and Literature Review: Components of research design and selection of a appropriate research design for research in planning and architecture. Need and process of literature review, style of referencing, bibliography, writing literature review

Research Methods: Overview of different research strategies relevant to research in built environment. Qualitative; Historic-interpretive; Co-relational; Experimental and quasi-experimental; Simulation; Logical Argumentation methods and case studies and combined strategies - their basic assumptions; Strengths and weaknesses of different methods, and areas of applications

Methods of data collection and analysis: Used for collecting data (observational studies, surveys, interviews) and analyzing data (quantitative, qualitative, multivariate analysis and software applications) for different research methods

Technical report writing and research publications. : Specific characteristics of writing technical report, Format and Elements of Reports, Planning and preparation of technical articles for publications

## Recommended Readings

- Ross, R., "Research: An Introduction", Barnes and Noble Books, 1974
- Gibbs, J.F., "Urban Research Methods", (Rev. Ed.) Von Nostrand, 1988
- Khanzode, V. V., "Research Methodology – Techniques and Trends", APH Publishing., 1995
- Groat, L. and Wang, D., "Architectural Research Methods", John Wiley & Sons. 2002
- Kothari, C. R., "Research Methodology – Methods and Techniques", New Age International. 2004
- Knight, A. and Ruddock, L., "Advanced Research Methods in Built Environment", John Wiley & Sons. 008
- Creswell J.W., "Research Design" Sage Pub. (3rd Ed), 2011
- Kumar R., "Research Methodology-A step-by step guide for Beginners' Sage Pub. (4th Ed), 2014
- C M Kothari, Research methodology,



### 3<sup>rd</sup> Semester

<b>S.No.</b>	<b>Course Code</b>	<b>Course Title</b>
1	21ARP702	Planning Studio-III
2		Programme Elective V
3		Open Elective
4	21ARD701	Dissertation-I
5	21ARS703	Seminar and Practical Training

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ARP702

Course Name : Planning studio- III

Credits : 4 L - 0 T - 0 P - 8

Course Type : Core

Prerequisites : none

## Course Contents

### UNIT I: METROPOLITAN AREA STUDIES

Review of existing master plan proposals, Analysis of City functions, Linkages and its Functional Urban Area, Sector specific studies, Identification of growth directions and development issues, key challenges, planning and design considerations. Formulation of urban vision, development goals and sector specific strategies for the metropolitan region.

### UNIT II: METROPOLITAN MASTER PLAN

Preparation of Detailed Base Map on GIS platform along with ground verification, Data Collection and Field surveys: Physical Survey, Socio-Economic Survey, Transportation survey, Future projections. Preparation of existing Land Use map, Delineation of Planning Zones, Proposed Land Use Plan for the horizon year and preparation of Master Plan Proposals. The end result of the process is a development plan for the metropolitan region both in written and graphic format. It describes the planning process, presents an efficient, economic and functional plan and provides direction for implementing the plan

## Recommended Readings

- Government of India (2015), Urban and Regional Development Plans Formulation and Implementation Guidelines (URDPFI) Vol.1, Town and Country Planning Organization, Ministry of Urban Development, New Delhi
- Government of India (2016), Formulation of GIS Based Master Plan for AMRUT cities, Town and Country Planning Organization, Ministry of Urban Development, New Delhi
- Government of India (2018), National Urban Policy Framework, Ministry of Housing and Urban affairs, New Delhi
- UN-HABITAT(2009), Planning sustainable cities-Policy Directions
- UN-HABITAT(2010), Planning sustainable cities-UN-HABITAT Practices and Perspectives
- Ministry of Housing, South Africa (2000) Guidelines for Human settlement Planning and Design, Vol.1 and Vol.II

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ARD701

Course Name : Dissertation -I

Credits : 6 L - 0 T - 0 P - 6

Course Type : Dissertation

Prerequisites : none

## Course Contents

Each student is required to prepare a dissertation on a subject concerning Urban Development and Planning as approved by the Department of Architecture.

The subject of dissertation may be conceptual, historical, analytical, and comparative or in any other area related to urban development and planning which shall be approved by the department. Development of research thrust and work methodology.

Finalisation of topic; formulation of problem statement, working hypothesis, research brief (including research questions, aim and objectives of the study ), research methodology.

Identification of data sources, conducting the systematic literature review on the selected research area/domain/topic, .

- Selection of study area, understanding of the selected study , general problems identified in study area related to research topic. .

The student will be required to make two seminar presentations and submit a report at the end of the semester which will qualify as the research methodology and literature review component of the thesis in the forthcoming semester

Each candidate will prepare the dissertation in consultation with a guide as approved by the department.

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ARS703

Course Name : Seminar and Practical Training

Credits : 3 L - 0 T - 0 P - 3

Course Type : Seminar

Prerequisites : none

## Course Contents

### Seminar

Research study and documentation on any one topic related to urban planning, the desirable output to be in form of a term paper and seminar under the guidance of supervisor and evaluated by a panel of faculty members.

### Practical Training

- Each student shall have to undergo professional training for a period of at least 6 weeks in an establishment Government, Semi-Government, Private organization, academic and or research institut approved by the programme advisor and Convener DPGC during the summer vacations between second and third semester of the M.Plan course .
- A student will be required to submit a performance report under whom training is undertaken as well as a detailed report on the work carried out by him during the training.
- The student is expected to work on any project/s related to urban planning or any specialization such as infrastructure planning, environmental planning, transportation planning, housing etc.
- Individual contribution of the student in the project handled, in any of the stages of work undertaken (data analyses, project formulation, policy framing etc.) is expected.
- The students would be evaluated on the basis of the report submitted and presented as a seminar at the time of viva-voce. The contents of the report should include brief introduction of organization and works undertaken, description of project/s worked on, role of individual student supported by data/evidences from the organization. The Presentation of Training seminar will be conducted at a scheduled day during the first week of third semester.

## 4<sup>th</sup> Semester

<b>S.No.</b>	<b>Course Code</b>	<b>Course Title</b>
1	21ARD704	Dissertation-II

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ARD704

Course Name : Dissertation -II

Credits : 14 L - 0 T - 0 P - 14

Course Type : Dissertation

Prerequisites : ARD723 Dissertation-I

## **Course Contents**

Students are expected to extend the work submitted in the previous semester to present a study complete in respect of its objectives and recommendations.

Detailed study and understanding the study context

Primarily data collection and analysis: sample determination, data tabulation (coding, de-coding, etc.), quantitative and qualitative data analysis. Appropriate and relevant data analysis methods would need to be studied by individual students based on thesis topic and research area.

Conclusions and recommendations based on the abovementioned study

Students are required to complete with the requirements and align with the instructions in the Thesis Manual approved by the Department Faculty Board and DPGC.

The student is required to work under the guidance of a supervisor allotted by the department and complete the requisite work in the course of the semester, ending in a viva-voce exam by a panel of examiners both external and internal. Progressive evaluation would be done by a panel of external and/or internal jurors during reviews held at intervals during the course of the semester.

## Program Electives for Odd Semester

<b>S.No.</b>	<b>Course Code</b>	<b>Course Title</b>
1	21ART813	Urban Conservation
2	21ART802	Community-based Planning
3	21ART815	Urban Ecology and Environment
4	21ART809	Land Management and Real Estate Development
5	21ART806	Geospatial Applications for Planners
6	21ART814	Urban Dynamics
7	21ART805	Energy Planning & Management
8	21ART803	Culture Sensitive Placemaking for Indian Cities

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART813

---

Course Name : Urban Conservation

---

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

Unit I- Introduction

Understanding conservation, significance and need of conservation; Preservation and restoration; Socio-cultural-economic and environmental significance of conservation; Various aspects of built and natural heritage; Conservation practice; Glossary- understanding redevelopment, revitalization, regeneration, rehabilitation and renewal.

Unit II- Basic Principles of Conservation and Degrees of Interventions

Conservation principles; Conservation conventions and practices adopted at International, National and local levels for heritage buildings, sites and cities; Charters from Venice to Mexico, classification and categorization of heritage sites

Unit III- Urban Conservation: Process, policies and norms

Heritage development within the context of continuity and change; Study of context and processes of urban conservation projects in India and other countries; Critical regionalism; Conservation policies, Planning norms and building byelaws for heriatage area or sites; Cultural heritage strategies in the context of urban development.

Unit IV: Institutional role and responsibilities

Role of national, state level organizations and Urban Local Bodies for Urban Conservation, significance of INTACH and other NGOs for conservation, Role of Community in urban conservation initiatives

Unit V: Case studies and emerging concepts

Study of successful examples of urban conservation in India and abroad, new and emerging concepts of urban conservation

## Recommended Readings

Reference books:-

- Urban Conservation, Cohen, N., MIT Press. 1999
- History of Architectural Conservation (Conservation and Museology), Jokilehto, J., ", Routledge.,2002
- Conservation of Historic Buildings Fielden, B. , Architectural Press. 2003
- Architectural Conservation: Principles and Practice, Orbasli, A.,Wiley Blackwell. 2007
- 5.The Conservation and Structural Restoration of Architecture Heritage: Theory and Practice, Croci, J., ", ComputationalMechanics Publications. 2008
- International Heritage and Historic Building Conservation: Saving the World's Past Aygen, Z., Routledge.2012



# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART802

---

Course Name : Community- based Planning

---

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

Introduction: Understanding inclusive growth, definitions and components, essential dimensions of community based planning

Dimensions of inclusive planning: Stakeholders profile and needs, access to shelter, services and livelihoods, urban poor, informal sector, gender, children, elderly, disabled, displaced people; Causative factors, determinants, location characteristics of settlements, growth of informal sector, characteristics, functions, economic contributions, linkages with formal sector, impact on urban development

Participatory planning process and policies, programmes and legislation: Methods, role of stakeholders (including civil society organizations); Related acts, five year plans, policies and programmes, action programs initiated Feasibility and assessment of implementation of existing policies and action programs.

Planning interventions: Inclusive zoning, development and building regulations, slum Improvement, Advocacy Planning, Regional and Multi-community Development Approaches, Models of Community Action, Building a Community Action Model

## Recommended Readings

Reference books:-

- Regional Plan-2021-NCR/11th Five Year Plan, Govt. of India. 2005
- Urban and Regional Development Plans Formulation and Implementation” (URDPFI) Guidelines, ITPI Publication. (draft) 2014
- Jain, AK, “Inclusive Planning and Social Infrastructure”, Bookwell Publications 2010
- Creighton. James L., “The Public Participation Handbook: Making Better Decisions Through Citizen Involvement”, Wiley publishers 2005
- Filippis J.; Saegert S., The Community Development Reader, Pub. by Routledge, New York, 2008.
- Lees L.; Slater, T.; Wyly, E., Gentrification, Pub. by Routledge, New York, 2008.
- Gary P.; Anna L., Asset Building and Community Development, Pub. by Sage Publications, 2001.
- Phillips R.; Pittman R. H., An introduction to Community Development, Pub. by Routledge, 2008.
- Brooks M. P., Planning Theory for Practitioners, Pub. by APA Planners Press, 2002.

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART815

Course Name : Urban ecology and Environment

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

Unit I- The interaction between humans and the urban environment, The concept of the urban environment

Unit II- Land, air and water pollution due to urbanization and hazards related to them, Urban Heat Islands and related issues, Ecological basis of Land utilization and land use principles (No. of lectures- 6)

Unit III- Resource optimization in urban planning, concept of Carrying capacity and its application, Urban form and energy needs. Climate change and urbanization, emerging disasters and their mitigation due to climate change and widespread urbanization (No. of lectures- 5)

Unit IV – Urban Waste Management Challenges, Principles of landscape ecology in an urban context, Urban Planning in special economies such as Industrial, mining, coastal etc. (No. of lectures- 5)

## Recommended Readings

- Pataki, Diane E., et al. "Coupling biogeochemical cycles in urban environments: ecosystem services, green solutions, and misconceptions." *Frontiers in Ecology and the Environment* (2011): 27-36.
- Goddard, M. A., Dougill, A. J., & Benton, T. G. (2010). Scaling up from gardens: biodiversity conservation in urban environments. *Trends in Ecology & Evolution*, 25(2), 90-98.
- Turner, W. R., Nakamura, T., & Dinetti, M. (2004). Global urbanization and the separation of humans from nature. *Bioscience*, 54(6), 585-590.
- McKinney, M. L. (2006). Urbanization as a major cause of biotic homogenization. *Biological conservation*, 127(3), 247-260.
- Alberti, M., Marzluff, J. M., Shulenberger, E., Bradley, G., Ryan, C., & Zumbunnen, C. (2008). Integrating humans into ecology: opportunities and challenges for studying urban ecosystems. In *Urban Ecology* (pp. 143-158). Springer US.
- Andersen, H. T., Møller-Jensen, L., & Engelstoft, S. (2011). The end of urbanization? Towards a new urban concept or rethinking urbanization. *European Planning Studies*, 19(4), 595-611.
- Busck, A. G., Hidding, M. C., Kristensen, S. B., Persson, C., & Præstholt, S. (2008). Managing urban landscapes in the Netherlands, Denmark and Sweden: Comparing planning systems and instruments in three different contexts. *Geografisk Tidsskrift-Danish Journal of Geography*, 108(2), 1-16.
- Caspersen, O. H., Konijnendijk, C. C., & Olafsson, A. S. (2006). Green space planning and land use: An assessment of urban regional and green structure planning in Greater Copenhagen. *Geografisk Tidsskrift-Danish Journal of Geography*, 106(2), 7-20.
- Gill, S. E., Handley, J. F., Ennos, A. R., & Pauleit, S. (2007). Adapting cities for climate change: the role of the green infrastructure. *Built Environment* (1978-), 115-133.

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART809

---

Course Name : Land Management and Real Estate Development

---

Credits : 3      L - 2      T - 1      P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

### Unit I

General Introduction to the concept of Land management and Real Estate and their significance in the process of urban development. Introduction to various policies and acts related to land like Land Acquisition Act, Urban Land ceiling act, etc. Land Reforms Act and Conversion of land use-process, etc. Introduction to basic fundamentals related to land management and land administration like land regularisation, land records, land information system and its types, land tenure and its types, land transfer, land speculation, etc.

### Unit II

Methods and techniques of land assembly including land acquisition, land pooling, land readjustment, land consolidation, land sharing, transfer of development rights, etc., land development and land disposal in detail; methods of land purchase and sale, role of the government, para-statal agencies and private sector in land and real estate management, etc. Economic principles of land use pattern and land values, Role of land economics in preparation of Urban Development Master plans, Economic base of cities and regions and their inter-dependency.

### Unit III

Types of Real Estate & Trade Terminology used in Real Estate Business- real estate sector and its future in India, Frequent Transactions in Real Estate. Main players in real estate market, Landlords, Builders, Developers, Real Estate Agents, Tenants, Buyers. Different types of Real Estate; Current assets, fixed assets, using fixed assets as a mode of investment, fixed assets held as immovable property, Modes of Public Private Partnership and its documentation.

### Unit IV

Valuation Methods; Factors affecting the supply and demand for land and building; Depreciation & Principles governing the rates of interest for different types of property, Contemporary trends of valuation of property, Compensation & betterment levy, Dilapidation & depreciation.

## **Recommended Readings**

### Reference books:-

- Jowsey, E.; Harvey J., Urban Land Economics; Pub. by Palgrave Macmillan, 2003.
- Ely, R. T.; Wehrwein, G. S., Land Economics, Pub. by University of Wisconsin Press, 2000.
- Goldberg, M.; Chinloy, P., Urban Land Economics, Pub. by John Wiley & Sons Inc., 1984.
- Drabkin, H. D., Land Policy and Urban Growth, Pub. by Pergamon Press, 1977.
- Timmons, J. F.; Murray, W. G., Land Problems and Policies, Pub. by Literary Licensing, 2012.
- Iyyer, C., Land Management: Challenges and strategies, Pub. by Global India Publications, 2009.
- Lall, S.V.; Freire, M.; Yuen, B.; Rajack, R.; Helluin, J.J., Improving Land management for Successful Urbanization, Pub. by Springer, 2010.
- Stephen P. Jarchow editor, "The Fundamentals of Real Estate Development," Graaskamp on Real Estate. Washington, DC: ULI The Urban Land Institute, 1991.
- Rajkumar Adukia—Encyclopedia of Real Estate.
- Gelbtuch, H.C. Mackmin, D. and Milgrim, M.R., Real Estate Valuation in Global Markets, Amazon Books.
- Valuation Practice of Immovable Properties, C.H Gopinatha Rao.
- Professional Valuation Practice, Dr. Ashok Nain.

### Online/E resources:-

- Land Use Policy, Elsevier Pub.
- Journal of Land Use Science, Taylor and Francis Pub
- Land Economics, University of Wisconsin Press.
- The journal of Real Estate Finance and Economics, Springer Pub.
- Journal of Urban Economics, Elsevier Pub.
- Journal of Real Estate Research, Taylor and Francis Pub.

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART806

---

Course Name : Geo-spatial Applications for Planners

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Elective  
Prerequisites : none

## Course Contents

### UNIT 1: Introduction To Geo-Informatics

Definitions - Geoinformatics, Remote Sensing, Geographic Information Systems (GIS), Spatial Data Infrastructure; the concept of earth surface projections and geoids; limitations of DBMS, engineering drawings and CADD packages - the need for GIS, Spatial and non-spatial data, raster and vector data, spatial thematic models. History and development of GIS, Hardware requirement, system concepts, co-ordinate systems, standard GIS Packages.

### UNIT 2: Geographic Information Systems

Components of a GIS; spatial and attribute data- input and output; spatial data entry- data structure for GIS, vector data structures; Coordinate systems; Geodetic data - point positioning, problems, measurements, spatial analysis using lab modules, etc.; Relevant Spatial analysis software, Data creation and query, Map preparation - Geo-referencing, digitization, scales, layers, layout, topology creation, spatial data analysis - buffer, overlay, 3D analysis and modeling; Emerging and advanced technology - web-enabled GIS, GPS tracking and monitoring, model builder, transparency through GIS, community participation through GIS, monitoring and management, mobile geo-spatial data collection, aerial mobile mapping, emergency response planning.

### UNIT 3: Concepts Of Spatial Data Infrastructure (Sdi)

Framework of geo-spatial data, interactively connected users and tools, Agreements on geo-spatial standards, Policies to facilitate access to geo-spatial data by users, Institutional arrangements, Use of SDI to communicate spatial data, issues, guidance and services for urban and regional planning.

### UNIT 4: Applications In Urban And Regional Planning

Preparation of base map, land use maps, utility and infrastructure maps, area delineation, cadastral maps, etc.; Area delineation, inventory preparation of classes; Condition assessment of specific areas, Quantitative measurement of landscape surfaces; Vulnerability mapping and Monitoring. Performing overlay functions - manipulating attribute data - GIS modeling - map and report generation, case problems on regional analysis, impact assessment study, project formulation and land suitability analysis. Network Analysis.

## **Recommended Readings**

Text Books:-

- Remote Sensing and GIS, Anil K. Jamwal, Jnanada Prakashan, Delhi. (2008)
- Introduction to Remote Sensing, Taylor & Francis, Loudon, Cambridge, J.B. (2002)
- Basic GIS Coordinates, Second Edition, CRC Press; 2 Edition, NY. Jan Van Sickle, (2010)
- Remote Sensing Digital Image Analysis: An Introduction, Birkhauser, London, Richards, J.A. and Xia, X. (2006)
- "An Introduction to Geographical Information System, Longman, England, Ian Heywood, Sarah Cornelius and Steve Carver, 2000.
- "Micro Computer packages for planning analysis", Klosterman RE., American Planning Association Journal, Autrenn, 1990.

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART814

---

Course Name : Urban Dynamics

---

Credits : 3      L - 2      T - 1      P - 8  
Course Type : Elective  
Prerequisites : none

## Course Contents

### Unit I: INTRODUCTION

Definitions of Urban, Drivers of urban growth, urbanization and development, problems and prospects of urbanization in India.

### Unit II: SYSTEMS THEORY

Systems thinking, General systems theory and principles of system, Systems view to planning, Significance of system dynamics in urban planning, Defining urban system, functions of urban system, dynamics of urban system.

### Unit III- SYSTEM DYNAMICS TECHNIQUE

Introduction to system dynamics techniques, Defining the Problem and its conceptualization, Causal Loop Diagrams, Typology of Variables, Stock Flow Diagrams. Data analysis and application of statistical techniques for model Input.

### Unit IV- SYSTEMS MODELING

Steps of System dynamics modeling, Model preparation, Model Validation, Analysis of system under alternative conditions and scenario forecasting, analysis of model results, modeling urban problems – based on current issues and field studies.

## Recommended Readings

- Bertalanffy, L.V., (1968), General Systems Theory, George Braziller, New York.
- Chadwick, G. F., (1971). A system View of Planning, Pergamon Press, New York,
- Checkland, P., (1981), System Thinking System Practice, John Wiley and Sons
- Ford, A. (1999), Modeling the Environment: an introduction to system Dynamic Modeling of Environmental System, Island Press, Washington D.C.
- Forrester J.W., 1968, Principles of System, Cambridge, MA: Productivity Press, Massachusetts
- Forrester J.W., 1969, Urban Dynamics, Cambridge, MIT Press MA, USA
- Hamilton, H.R., 1969. System Simulation for Regional Analysis. MIT Press
- Lee, C., 1973, Models in Planning, Pergamon Press, New York
- Mohapatra, PK.J., Mandal, P. and Bora, M.c., 1994. Introduction to system Dynamics Modelling, University Press (India), Hyderabad.
- Richardson, G.P. and Pugh, AL., 1989, Introduction to system dynamics Modeling, Pegasus Communications Inc., Waltham (MA)
- Sterman, J.D., 2000. Business Dynamics: System Thinking and Modeling for a Complex World. McGraw- Hill, Lusia, USA.
- Myrna H. P. Hall , Stephen B. Balogh (Ed.) (2019), Understanding Urban Ecology: An Interdisciplinary Systems Approach, Springer
- Marita Wallhagen, Mathias Cehlin (Ed.) (2020) , Urban Transition - Perspectives on Urban Systems and Environments, Intech open

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART805

Course Name : Energy Planning & management

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

Unit I- Introduction of Various urban sectors, Function and various activities of urban area, Carbon foot prints of cities, Consumption pattern of energy in infrastructure, urban services and buildings, Tools and techniques for analysis of energy consumption pattern in various urban sector.

Unit II – Data required and method of analysis of energy need & consumption pattern in various urban sector, urban infrastructure sector, urban services sector and building sector, Energy saving measures for infrastructure sector, building & service sector and existing & new/extension urban area.

Unit III- Renewable energy systems and technology, Concept of energy planning at regional level, Urban energy management system, Comparing conventional city and Energy planned city, Urban energy planning policies and regulations, Existing guidelines for energy planning, Urban energy management models

## Recommended Readings

Reference books:-

- Urban energy system: An integrated approach by James Kierstead and Nilay Shah.
- Energy efficient cities- Assessment tools and benchmarking practices by Ranjan K Bose.
- Energy efficient Planning by E Fraimgil
- Energy Planning and Urban form Susan E. Owens



# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART803

Course Name : Culture Sensitive Placemaking for Indian Cities

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## **Course Contents**

Unit 1: Introduction – Understanding core concepts of placemaking, culture sensitive planning, contextuality in urban character, urban social behavior, urban psychology, Placemaking in indian context etc.

Unit 2: Toolbox : Theories, Methodologies and Tools that are used to analyse urban social behavior and associated phenomenon.

Unit 3: – Case Studies : Major casestudies of placemaking and urban interventions from across the world and how culture played a major role in their successful integration.

Unit 4: Analysis : Analysing an existing urban fabric, its places and placemaking history, quality of its places and their functioning using theories, tools methodologies learned.

Unit 5: Apply : formulate and design placemaking intervention concepts for a real or hypothetical problem of urban placemaking and discuss its socio-cultural dynamics.

## **Recommended Readings**

- A City in History: Its Origins, Its Transformations, and Its Prospects Lewis Mumford Harcourt Brace Jovanovich 1961
- A Pattern Language: Towns, Buildings, Construction Christopher Alexander Oxford University Press 1977
- Good City Form Kevin Lynch The Massachusetts Institute of Technology 1996 Tenth Printing
- Site Planning Kevin Lynch The Massachusetts Institute of Technology 1962
- The Community Development Process: The Rediscovery of Local Initiative William W. Biddle with Loureide J. Biddle Holt, Rinehart and Winston, Inc. 1965
- The Death and Life of Great American Cities Jane Jacobs Vintage 1961
- The Image of the City Kevin Lynch The MIT Press 1960
- The Social Life of Small Urban Spaces William H. Whyte Project for Public Spaces Inc. 1980
- Town Planning Raymond Unwin Princeton Architectural Press First 1909, last 1994
- Town Planning in Frontier America John Reys University of Missouri Press 1980

## Program Electives for Even Semester

S.No.	Course Code	Course Title	Credit	L	T	P
1	21ART816	Urban Risk and Disaster Management	3	2	1	0
2	21ART817	Water Sensitive Urban Planning	3	2	1	0
3	21ART810	Smart Cities	3	2	1	0
4	21ART812	Sustainable Practices and Future Cities	3	2	1	0
5	21ART807	Housing	3	2	1	0
6	21ART801	Climate Responsive Urban Planning	3	2	1	0
7	21ART808	Introduction to Urban Design	3	2	1	0
8	21ART811	Spatial Analytics and Computational Techniques for Planners	3	2	1	0
9	21ART804	Development Innovations & Finance	3	2	1	0

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART816

---

Course Name : Urban Risk and Disaster Management

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Elective  
Prerequisites : none

## Course Contents

Unit I- Introduction

Natural and man-made disasters, meaning, factors and significance, causes and effects, global and local disaster profile, risks, vulnerability, hazard, Typology of disasters in India, human behaviour and response.

Unit II- Disaster Management and Mitigation

Disaster mitigation / preparedness and response; structural and non structural interventions, action plans and procedures, training issues. Disaster management cycle and helix, planning for disaster prone areas, disaster mapping, vulnerability analysis, vulnerability atlas, predictability, forecasting and warning, relief measures, reconstruction and rehabilitation, disaster preparedness plan, Urban disaster resilience

Unit III- Policies, Guidelines and Norms for Disaster Management and Mitigation

Planning standard and Codal Provisions for safety against hazards, National Disaster Management Act 2005, National Disaster Management and Mitigation Policy 2009, State and District Disaster Management Plans. Planning norms and building regulations for safety against natural hazards

Unit IV- Institutional role and responsibilities

Role of national and state level organisations and Urban Local Bodies for urban risk and disaster preparedness, Role of Community in disaster management and mitigation

Unit V- incorporation of Hazard Zonation in urban planning process

Introduction to process of hazard zonation, case studies of hazard zonation, incorporation of hazard zonation in urban planning exercises ((no. of lectures- 04)

## Recommended Readings

- The Role of Ecosystems in Disaster Risk Reduction, Fabrice G. Renaud, Karen Sudmeier-Rieux and Marisol Estrella., United Nations University Press, 2013
- India Disaster Report, K. J. Anandha Kumar & Ajinder Walia, "", NIDM
- Training Module on Urban Risk Mitigation, Bandyopadhyay C, "", NIDM 2013
- Engineering Response to Hazards of Terrorism, Jain S K, Murty C V R, Rai D C, National Information Centre of Earthquake Engineering, Kanpur
- IS Codes for Selection of Suitable Sites, IS: 14324.
- IS Codes related to Land Slides protection, slope stability, earthquake resistant design.
- Booklets and provisions provided by National Disaster Mitigation Authority for different disasters.

Web resources:

- <https://nidm.gov.in/>
- <http://mohua.gov.in/>

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART817

---

Course Name : Water Sensitive Urban Planning

---

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

### Unit 1

Units of water related planning units - basin/ catchment and relationship to planning boundaries and units. Inter basin transfers and their Socio-Environmental consequences.

### Unit 2

Concepts in Integrated Water Management, and Integrated Urban Water Management related to Physical Planning. Rain water harvesting

### Unit 3

Urban water cycle and distortion's in the cycle. Urban water systems and drainage. Water budget calculation methods

### Unit 4

Water sensitive physical planning, Water sensitive urban planning.

## Recommended Readings

- Landscape Planning Environmental Applications- Marsh, William M.-Wiley 2010
- Design with Nature, McHarg, Ian L.-Wiley 1992
- The Landscape of Man- Shaping the environment from prehistory to the present day, Jellicoe, Geoffrey and Susan - Tames and Hudson 2012.
- Towards water wisdom- Iyer, Ramaswamy R. Sage 2007
- Water- Perspectives, issues, concerns Iyer, Ramaswamy R. sage 2010
- Radiant Raindrops of Rajasthan Mishra, Anupam, RFSTE 2001.
- Dying Wisdom Rise, fall and potential of India's Traditional water Harvesting Systems. State of India's Environment -4th Citizens report. CSE

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART810

---

Course Name : Smart Cities

---

Credits : 3      L - 2      T - 1      P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

**Unit I-** Understanding Smart Cities; The future of urban development and smart cities in India, Latest developments of smart cities in India; budgetary allocations, urban reforms and policies, 100 Smart Cities Policy and Mission;

(no. of lectures- 4)

**Unit II-** Smart Cities– Global Standards and Performance Benchmarks, Practice Codes, Dimensions of Smart Cities, Measuring smartness; indexes and toolkits.

(no. of lectures- 4)

**Unit III-** Smart city management, Financing of smart city; Case Studies on Project management of Smart Cities, the role of information and communication technologies in developing smart cities, Management of Smart Cities calls for different approaches from conventional urban management approaches, Governance of smart City

(no. of lectures- 4)

**Unit IV** -Conventional vs. Smart, City components, Energy demand, green approach to meet Energy demand, Index of Indian cities towards smartness–a statistical analysis, Application of solar energy in smart cities. Concept of smart building. Application of green energy in smart city context

(no. of lectures- 4)

**Unit V-** Introduction to smart urban transportation systems, Smart transportation Technologies; Role of ICT and transportation in smart Cities, Intelligent transport systems and smart mobility modes.

(no. of lectures- 5)

**Unit VI** – Machine Learning, Data analytics, managing of big data. Role of Open data in Smart cities  
(no. of lectures- 4)

## Recommended Readings

- Deakin, Mark; Al Waer, Husan (Eds) (2012), From intelligent to smart cities, Routledge, Taylor and Francis, USA.
- Manuel Pedro Rodriguez-Bolivia (Eds) (2015), Transforming City Governments for successful smart cities, Springer, International Publishing Switzerland.

- Roger L. Kemp, Carl J Stephani (Eds) (2013), Global models of Urban Planning: Best Practices outside United States.
- Stan Geertman, Joseph Ferreira, Jr., Robert Goodspeed John Stilwell (Eds) (2015), Planning support systems and smart cities, Springer, International Publishing Switzerland

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART812

---

Course Name : Sustainable Practices and Future Cities

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Elective  
Prerequisites : none

## **Course Contents**

Unit I - Sustainable Development and Planning- Introduction: Concept of Sustainability - The concept Of Sustainable Planning and its relevance-Historical background of village Influence of modernity and changes in locality based village forms, Sustainable Planning within Planning Theories - Environmental impact of building sector.

Unit II - Sustainable settlement planning -Unsustainable settlements — Centralization and concentration of activities - Its problems - Sustainable settlement planning. Eco neighbourhood, ecological townships - Urban form and locality - Design of Eco friendly, Neighbourhood ecosystem neighbourhoods - Eco neighbourhood - Case studies - Sustainable City Programme (SCP) - HABITAT & UNEP - the concepts and case studies - Environmental policies for sustainable city.

Unit III - Community and sustainability Community and sustainability — Changing nature of community — Community based initiation for sustainable development — Community governance — community basis shelter technology -energy consumption in settlements.

## **Recommended Readings**

- Hugh Barton — Sustainable Communities — The potential for Eco neighborhoods — Earthscan Publications London, 2000.
- UNCHS. UNEP - Publications on SCP
- Dr. R. K. Wishwakarma — Social Formation and Change — ITPI Reader.
- B.C. Bose, "Integrated approach to sustainable Development", Rajat Publications, Delhi.
- Caring A. Langston, Grace K.C. Ding. "Sustainable practices in built environment", second

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART807

---

Course Name : Housing

---

Credits : 3      L - 2      T - 1      P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

Unit I – Definition of housing and community. Housing as integral component of comprehensive urban and regional development. Housing and community form as shaped by physical, technological, socio-economic, demographic and political factors. Role of housing in social and economic development. Housing as an index for social welfare. Housing in relation to stages of development particularly as related to developing economy. Housing need, demand and supply, definitions and typologies.

Unit II Housing design standards for various income group housing, analysis and design for HIG, MIG and LIG housing schemes. Selected case studies of housing schemes by government and private developers in India and abroad. Socio-economic analysis of housing demand; supply and mobility calculations for the same. Housing needs ,assessment, Housing statistics, affordability assessment, factors affecting them, theoretical models and dynamics. Public housing programmes, site and services and slums upgradation approach.The concept of housing standards and issues involved in formulation of standards .

UnitIII: Five Year Plans of GOI, Nature and Type of housing development Programmes . Rural Housing Schemes – Slum Housing Programmes - Cooperative and Private Sector Housing. Role of NHB .Public housing agencies in India at National, State and Settlement level. Their functions and programmes Exercises. Housing programmes in five year plans of India. Social housing programmes, Role of private and cooperative sectors in housing. Rental housing, self help housing, housing in the informal sector. Problems of slums and squatting.

Unit IV External and internal factors of influence on Housing Development – Trends in Housing Market –Micro and macroeconomic view of the housing sector, Multiple delivery systems. Housing situation in India in quantitative and qualitative terms. Obstacles to provision of housing in India and emerging issues and priorities in urban and rural housing delivery .Best practices in housing( slum upgrading, city wide networking,affordable housing provisions). Quality of housing in terms of Quality of life, Morphological satisfaction, Development of wellbeing .Socio cultural perspective of housing. Housing and family life.use of social audits,housing and community development schemes, Principles of community organization. Social sources of residential satisfaction. Community participation in design and implementation of housing programmes.



## **Recommended Readings**

- Chiara, J.; Panero, J.; Zelnik, M., Time Saver standards–Housing, Pub. by McGraw-Hill,1992
- Beyer, Glen H., Housing: A factual analysis, Pub. by Macmillan, 1958.
- Revi, A., Shelter in India – Sustainable developmental series, Pub. by Stosius Inc/Advent Books Division, 1990.
- Douglas F., Sustainable Urbanism: Urban design with nature, Pub. by Wiley, 2007.
- National Housing policies (NHP)
- Affordable Housing –cost effective by Eva Maria Herrmann and Thomas Jocher
- The Affordable Housing Reader by Rosie Tighe,Elizabeth MuellerInternational Journal on Housing Markets and analysis
- Charles Correa, „Housing and Urbanization: Building Solutions for People and Cities“, Thames & Hudson May 2003
- J. Rosie Tighe and Elizabeth J. Mueller „The Affordable Housing Reader“ Routledge; 2012
- Graham Towers, „ Introduction to Urban Housing Design“ Routledge; 2005
- Annual Report 2010-2011, Ministry of Housing & Urban Poverty Alleviation, Government of India.
- Stein, M. J. (1995). “Classic Readings in Urban Planning”, McGraw-Hill, New York
- Nath, R. (1995). “Medieval Indian History and Architecture”, APH Publishing Pvt. Ltd, New Delhi.
- Lynch, K. (1981). “A Theory of Good City Form”, Cambridge Publications, London. Gallion, A. (1963). “The Urban pattern; City Planning and Design”, D.V. Nostrand Company Inc, N.York.

### Web references:

- [http://www.mhponline.org/files/Housing\\_Study\\_Template](http://www.mhponline.org/files/Housing_Study_Template).
- [https://www.nhb.org.in/Urban\\_Housing/HousingPolicy2007.pdf](https://www.nhb.org.in/Urban_Housing/HousingPolicy2007.pdf)
- [https://nptel.ac.in/courses/124/107/124107001/\(Full Series\)](https://nptel.ac.in/courses/124/107/124107001/(Full Series))
- [https://nptel.ac.in/courses/124/107/124107004/\(Full series\)](https://nptel.ac.in/courses/124/107/124107004/(Full series))
- <https://nptel.ac.in/content/storage2/courses/105101010/downloads/Lecture10.pdf>

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART801

Course Name : Climate Responsive Urban Planning

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

Climate Types and Traditional Precedents: Climate resources (sun, earth, sky, wind, water); Climate classification (world / India) and Local climate zone classification (LCZ); Urbanization and climate change; Basics of radiation exchanges; Urban heat island , Urban temperatures and Heat island types; Urban function and effect on climate (viz. green-house gas emission from cities); Basics of wind and turbulence in urban area , Pedestrian energy exchange at street canyon level, etc.

Climate Responsive Design: Spheres of Climate responsive / Energy Efficient / Green / Environmentally Sustainable Designs; Concept of Green urbanism; Human comfort and energy efficiency; International conventions, agreements , laws, standards and emerging technologies for sustainable design.

Climate and Urban Form (Macro Level): Urban built form configurations , determinants ,scale and Indicators; Urban form and passive design strategies; Sustainable urban forms their typologies , models and concepts; Various indicators of urban form such as compactness, pervious and impervious surfaces, aspect ratio, building height etc.; Urban form and transportation; Climate sensitive transportation; Designing Strategically for Preventing Pollution: Air, Water, Soil, Noise, Light, Radiation, etc.

Climate and Built Environment (Micro Level): Impact of urban form on microclimate and energy performance; The energy balance of climate responsive building ; Climate responsive design principles and solutions; Fundamentals of building physics; Basics of Energy transfer and energy balance; Bioclimatic needs of humans; Bioclimatic design as a foundation of climate responsive design; Neighbourhood planning theory, guidelines and research; Climate conscious urban design -basic principles; Traditional precedents: Cultural discourse in Built environment; Neighbourhood design best practices such as pol houses of Ahmedabad, wadas of Maharashtra, Bohras community houses in Gujarat etc.

Climate Responsive Building Elements and Passive Design Strategies: Thermal conservation, Thermal buffering and thermal distribution, Passive solar heating, Earth coupling, Natural illumination, Solar shading, Natural ventilation; Concept of passive heating and cooling strategies, Passive ventilation and daylighting strategies.

## **Recommended Readings**

Reference books:-

- People Places - Design guidelines for urban open spaces - Marcus & Francis
- Urban Design - Green Dimensions - Moughtin
- Urban Architecture, City Planning - Arco colour collection
- The Heritage of Urban design - P. Sperigan
- The Image of the City - Kevin Lynch
- The Urban Pattern-City Planning & Design - Arthur B. Gallion& Simon Eisner
- The City Shaped: Urban Patterns and Meanings through History, Spiro Kostof, Thames and Hudson
- The City Assembled: The Elements of Urban Form through History, Spiro Kostof, Thames and Hudson
- The City in History: It's Origins, its Transformations, and its Prospects, Lewis Mumford, Harcourt.
- Good City Form, Kevin Lynch, MIT Press
- Design of Cities, Edmund Bacon, Thames and Hudson

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART808

---

Course Name : Introduction to Urban Design

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Elective  
Prerequisites : none

## Course Contents

Introduction to the role and scope of urban Design. Comparison of scope with Architecture and Town Planning.

To explore the factors and forces that governs evolution of the city and its Urban morphology. Determinants of urban forms such as landform, climate, symbolism, activity patterns, socio-cultural factors.

Vocabulary of Urban Design - definitions and visual explanation of Urban Design Terminology.

Elements of city design and concepts of imageability - Paths, nodes, landmarks, edges and districts – their characteristics, role and interrelationship.  
urban landscape features.

Introduction to the principles of urban design. Historicity, Imageability, legibility, urban context, and their significance for citizens and designers.

Various elements of urban spaces through history. Role of public places in the contemporary city.

Urban Controls and their impact on the cityscape.

Case examples of well-known spaces from different periods in history and various parts of the world.

## Recommended Readings

Reference books:-

- People Places - Design guidelines for urban open spaces - Marcus & Francis
- Urban Design - Green Dimensions - Moughtin
- Urban Architecture, City Planning - Arco colour collection
- The Heritage of Urban design - P. Sperigan
- The Image of the City - Kevin Lynch
- The Urban Pattern-City Planning & Design - Arthur B. Gallion& Simon Eisner
- The City Shaped: Urban Patterns and Meanings through History, Spiro Kostof, Thames and Hudson
- The City Assembled: The Elements of Urban Form through History, Spiro Kostof, Thames and Hudson
- The City in History: It's Origins, its Transformations, and its Prospects, Lewis Mumford, Harcourt.
- Good City Form, Kevin Lynch, MIT Press
- Design of Cities, Edmund Bacon, Thames and Hudson

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

---

Course Code : 21ART811

Course Name : Spatial Analytics and Computational Techniques for Planners

---

Credits : 3      L - 2      T - 1      P - 0  
Course Type : Elective  
Prerequisites : none

## Course Contents

Unit I - Introduction to computational modeling of Urban Systems, Associated concepts and Theories, Complexity theory, Urban Sociology, Conscious Cities, Spatial Cognition, Image and Understanding of Cities by Stakeholders (Citizens, Tourists, Migrants)

Unit II – Urban Analytics software set-ups that move from conceptualization and experimental design, to data collection, analysis, to the presentation and interpretation of findings. Space Syntax Theory, Depthmap and DepthmapX Toolsets, Types of Analysis and Measures. 3D-GIS Tools, OSM, Citygml, CityEngine, Rule Based Generation of Urban Layouts. Using Software tools and analysis outcomes to inform planning process.

Unit III - Analysis of Case studies : Case studies of Urban Spatial Analytics with Tools and Techniques used ( available case studies like London, Manhattan, Beijing etc.). London-Thames River Bed Study, Trafalgar Square Study, Applying methods to an Indian Urban Case-study

## Recommended Readings

Text Books: -

- Hillier, B. (2007). Space is the machine: a configurational theory of architecture. Space Syntax.
- Hillier, B., & Hanson, J. (1989). The social logic of space. Cambridge university press.
- Singleton, A. D., Spielman, S., & Folch, D. (2017). Urban analytics. Sage.
- Batty, M. (2019). Urban analytics defined.
- Hillier, B., Penn, A., Hanson, J., Grajewski, T., & Xu, J. (1993). Natural movement: or, configuration and attraction in urban pedestrian movement. Environment and Planning B: planning and design, 20(1), 29-66.
- JIANGPING, Z. (2015). Urban Complexity and Planning: Theories and Computer Simulations.

Online/E resources:-

- <https://spacesyntax.com>
- <https://spacesyntax-openmapping.netlify.app/#6/55.603/-3.252>

# MALAVIYA NATIONAL INSTITUTE OF TECHNOLOGY JAIPUR

Department/Centre : Architecture and Planning

Course Code : 21ART804

Course Name : Development Innovations & Finance

Credits : 3 L - 2 T - 1 P - 0

Course Type : Elective

Prerequisites : none

## Course Contents

### UNIT 1. CONCEPT OF DEVELOPMENT

Concept of Development, Economic Growth and Development and Sustainable Development  
Positive and negative aspects of development, Poverty & Development, Millennium  
Development Goals, their targets and indicators for monitoring progress  
Development & Physical Planning

### UNIT 2. DEVELOPMENT APPROACHES

Approaches to development at a variety of scales: grass roots development, rural  
development programmes, exploitation of resources, industrialisation (foreign investment,  
joint ventures, public versus private funding, etc.), formal and informal developments

### UNIT 3. MEASURES & INDICATORS OF DEVELOPMENT

GNP and GDP per person, GNI, HDI, life expectancy, health data, education data, use of  
energy resources per person, production, employment and employment structure (primary,  
secondary, tertiary employment) and female participation.

Why indicators vary and why some are more useful than others

### UNIT 4. IDENTIFY PATTERNS OF DEVELOPMENT

Broad global patterns of development

Characteristics of countries at different levels of development: low, middle and high income  
countries, Newly Industrialised Countries/Economies, industrialised/non-industrialised  
countries.

### UNIT 5. INDUSTRIALISATION, TRADE & GLOBALISATION

Formal and informal sectors; Factors of production: land, labour, capital, enterprise; Labour  
and capital intensive methods of production; Economies of Scale; Sectors of production &  
intersectoral linkages

Growth and changes in the pattern of world trade since 1950; Special Economic Zone & Free  
Trade Zone; Understanding Impacts of physical planning through case studies. Advantages &  
disadvantages of Globalisation

### UNIT 6. DEVELOPMENT & FINANCIAL INSTITUTIONS

Development of Financial Institution and Instrument, Credit System, Micro-finance  
institutions, Self-help groups, Role of aid agencies and aid effectiveness, Role of the IMF,  
World Bank and regional development banks (such as Asian Development Bank, African  
Development Bank) in promoting development, Function and impact of foreign investment on  
development, Role of the Government in Economic activity & Development- Allocation,  
distribution and stabilisation functions; Private, Public and Merit goods.

## **Recommended Readings**

Text Books: -

- Growth and Development: Thirlwall, A. P. (2006)
- Approaches to Development Politics, Administration and Chance: John D. Montgomery & William J Siffin
- Techniques of population Analysis: G.W. Barclay
- Population Growth and Economic Development in Low Income Countries : Coale and Hoover
- Reflections in Human Development : Mahboob-Ul-Haq
- India-economics and Social Opportunity : Amartya Sen and Jean Dreze
- Development as Freedom : A. Sen, , Oxford University Press, 2000
- The Political Economy of Hunger, J. Dreze and A. Sen (eds.), Volume 1: Entitlement and Well-Being, Clarendon Press Oxford, 1990
- Economic Development in the Third World : M.P. Todaro
- Growth and Income Distribution: Krishnaswamy (ed)
- Development Planning – The Indian Experience: Chakravarty
- Deepak Nayyar (ed) – Industrial Growth and Space Stagnation
- Planning Development: K.B. Griffin and T.L.E. Nos