



**RASHTRASANT TUKADOJI MAHARAJ NAGPUR UNIVERSITY,  
NAGPUR FACULTY OF SCIENCE AND TECHNOLOGY  
MASTERS IN URBAN DESIGN**

Semester I

**UDC-01 Design Studio and Workshop I:**

The studio is the introduction of the student to the realm of urban design. The **objective** is to expose them to the complexities of the design process and to create an understanding of the role of various physical, social, economic and infra structural components and decision making processes; the contribution of related disciplines associated with the production of the city. The studio will also familiarize the student with urban design terminologies, methods of surveys and site analysis.

The design studio will assist the students in acquiring skills of documentation, representation and analysis of urban design projects and typological studies. An interactive session with invited professionals may be organized who will demonstrate the design development process of projects, their funding, management, construction and any other relevant issues pertaining to design and development.

**Studio work:** The suitable site will be chosen in central India for study and documentation of urban landscape with three-dimensional models. Emphasis will be on survey, documentation and programme interpretation in terms of design.

**UDC-02 History of Urbanity:**

The **objective** of the course is to understand the reasons and processes responsible for emergence of 'urban areas'. The subject shall focus on determinants of urbanity and its components. Parallel development in science, economics and socio-political spectrum shall also be taken as background for explaining the chronological overview of the subject.

The course provides a morphological overview of the general processes of modernization from Post-Industrial Revolution. The transformations beginning with the concepts of the Garden City and City Beautiful movements to the rise of the city as machine of the 19<sup>th</sup> century are to be primarily discussed and the effect of Modernist urbanism on Indian cities. Pre-industrial urban form, nature of cities, city models, reasons of transformation in urban form.

- The Industrial revolution, its effect of on European urbanism.
- Concepts of Garden Cities or cities in the garden, in Europe and America, influence on the development of mercantile Colonial Towns in India
- City beautiful movement - Chicago, New Delhi, Canberra, Berlin
- Industrial colonization and the introduction of Colonial Institutions in urban India
- CIAM and the Modern Movement, Bauhaus, Corbusier's Radiant City
- Urban renewal and post-war reconstruction, the picturesque city. The role of Geddes, Mumford and Jane Jacobs beginning of modern town planning in India, emergence of town planning, zoning and building regulations
- City of the Automobile, American suburbia, Transportation, the building of suburbia, New Town Movement and its influence on post-independent Indian city planning concepts

**Assignments:** Seminar presentation on study of a selected urban space of Indian cities critically analyzing the origins and influences and success or failures of the designs.

### **UDC-03 Urban Design Methods and Techniques:**

**The course provides** explanations of Urban Design terminologies, definitions and methodologies for shaping and understanding of urban form; derived from both theory and empirical evidence. Drawing references from text such as those of Camillo Sitte, Gordon Cullen, Lynch, Alexander, Jacobs, Venturi, Rossi, Krier, Edmund Bacon etc.

- Concepts of place and space
- Urban design terminologies and definitions
- Methods of urban design surveys, documentation and representation
- Cognitive mapping – contemporary and traditional
- Space analysis
- Determinants of urban form
- Components of urban structure
- Concepts of layering
- Size, shape and form of cities
- Typological studies
- Architectural expression

**Assignments :** An extensive reading list shall be given to the students at the start of the semester and will be asked to critique the normative doctrines of urban design that produce them, derived from both theory and empirical evidence.

### **UDC-04 Site and Urban Planning:**

The **objective** is to develop skills that enable an urban designer to deal with large sites in urban areas in a comprehensive manner from ecological considerations to the design of services and related infrastructure. Systems are integral to understanding of site planning and any urban linkages. Theory classes shall bring various elements of systems in urban environment like housing, natural sites, nature within urban areas, interface of nature and human in cities.

The course work will include

- Site planning principles
- Ecological factors in site evaluation such as Physiography, geomorphology, hydrology, microclimate, vegetation, wild life
- Cultural resources
- Road layout and parking
- Site grading and drainage , Sewerage, water supply and electricity

**Studio work:** Choose a suitable site in Nagpur where the students will individually map, evaluate and analyze the site from the knowledge imparted in the theory classes. Site planning proposal to be worked out focusing on Inter-relationship of plan form- land form, Open space-built space relationship, Ecological responses & constraints, Urban design guidelines and contextual design, Circulation, services, allocation of infrastructure and Landscape design.

### **UDE- 01 Computer aided urban design:**

The **objective** is to introduce Geographical Information Systems and related software systems as tools for documentation, mapping, analysis and presentation for urban design, site planning schemes; explaining their theoretical base. Introduction to presentation softwares like Google Sktech, Revit etc shall be also covered in the classes.

The **assignment** shall be preferably linked with parallel running design studio so as to give hands-on training. Separate small assignments can also be devised.

### **UDE-01 Indian Urbanism:**

This subject shall cover urbanity, which is specific to Indian context. The subject shall cover socio-cultural aspects of historical as well as modern India referring to non-physical dimensions urban design. This class shall be based on discussion and debate format. Use of films, dramas, and newspaper articles, advertisements shall be encouraged in classroom.

- Introduction to Urbane India, people, culture and society.
- Pre-independence and post-independence India, differences-similarities
- Typifying Indian cities through various examples like Mumbai, Delhi, Ahmadabad, Bangaluru-urban life, realities etc.
- Rural India vs. Urban India, State vs. Nation, differences, stereotypes.
- Urbanization indicators, urbanism in India.
- Dimensions of Urban identity in India
- Nehruvian and Gandhian ideas on urban-rural India.
- Urban life world of India, urban anthropological city types in India
- National Commission on urbanization of India-recommendations
- Concepts of rural-urban continuum and dichotomy

Lectures and discussions will be based on extensive reading of the literature on urban issues of India.

**Assignments:** The subject shall culminate into end term paper written by student on the chosen topic with periodic discussions with concerned faculty.

## Semester II

### **UDC-05 Design Studio II:**

The **objective** of this studio is to study urban environment and how to systematize complex urban settings. Any city is composed of multiple urban components and actors; the aim of the studio is to find out these components and actors through firsthand experience of city. Various methods of city analysis are to be used in the studio, e.g. layering, networking, collage, etc to understand the complexity of our cities. The studio will also take into account the current development pattern in the selected city and also include various stakeholders to make interventions meaningful and contextual.

The selection criteria shall be based on the multiplicity of the urban components and how they are connected to each other. Cities with temporal layering such as historical and modern shall serve as appropriate choice for the studio. Various factors like historicity, socio-political patterns, economic dynamism, polarization of groups, ecological and environmental and global influences can be taken as determinants for selecting the city. The city shall be preferably within India to understand the immediate urban surrounding where students are going to get firsthand experience.

**The studio** will focus on understanding city's complexity from the viewpoints of three main determinants: Infrastructure, housing pattern and urban history and how these determinants work in networking of various urban conditions of past and present. Appropriate design proposals for the chosen situations will be worked out.

### **UDC-06 Theory of urban Form:**

The **objective** of the subject is to study the theories and patterns of urban form that have changed over a period of time. The role of urban design and planning in shaping the urban form will be discussed in the subject. The notion of 'good city form' has evolved continuously since historic times. It has different connotations with respect to different cultural backgrounds and different time periods.

The contents of the subject include:

- Introduction about theories of urban form, nature of theory, types of theory and uses of theory.
- What is urban form? How to represent urban morphology?
- Methods of evaluating urban form, performance dimensions
- The cosmological tradition
- The functionalist tradition
- The formalist tradition
- The organic tradition
- The utopian visions and theories
- Recent theoretical directions and livability theories
- Ecological theories and feminist theories

### **Assignments: Urban form theorist debate- role play**

During the semester, each student will play the role of one urban form theorist drawn out of the lot. Research the theorist focusing on their ideas relating to urban form with bit of personal background and place in history. Present the theorist's ideas and debate your theorist's ideas with others.

### **UDC-07 Urban & Transport Planning- Planning Legislation & practices:**

The **objective** of the course is to familiarize the students with the movement structure of a city and the planning concepts, standards, methods, procedures and management systems for transportation. Also to understand the meaning, significance and objectives of planning legislation; constitutional basis and provisions relating to land, its development and use. A critical overview of the Nagpur Master Plan is to be used as a case example to understand planning processes and its impact on the production of the City.

- Importance and role of transport in urban design: Accessibility vs. mobility – the transport planning dilemma for urban designers
- Concept of hierarchy of roads in urban area and their capacities, road geometries and road components, traffic volume, origin destination, spot speed, speed and delay, parking and pedestrian issues. Design and preparation of layout for road intersections, rotaries and signalized intersections
- Traffic and transportation surveys- i.e. traffic volume survey, origin-destination survey, speed and delay survey etc. their methodology and presentation, sampling techniques concept of traffic zoning.
- Parking survey, parking demand estimation and related planning and design standards, Successful cases of parking infrastructure development and management.
- Use of analytical models for transportation planning- programming and scheduling, processing of travel data, analysis and interpretation of traffic studies; introduction to transport planning process; trip generation, trip distribution, trip assignment, model split, land use transportation models;
- Pedestrian circulation, cycle tracks and vehicle pedestrian conflicts, measures to alleviate the same
- Traffic related urban graphics, urban aesthetics and traffic architecture
- Public transport systems in the World, their standards and system selection.
- Special emphasis on transport issues in Indian cities, successful cases of appropriate Transport planning and infrastructure design from India and other countries.

- Planning terms and their definitions: Concepts of Zonal Plans, Area Development Plans, Development Schemes, Urban Renewal, Redevelopment, City Development Plans, and Planned Unit Development etc.
- Concepts of land use, zoning regulations, mixed use development, Special Economic Zones
- Planning surveys and sampling, evaluation of planning requirements
- Planning standards and models
- Evolution of planning legislation in India. Overview of legal tools for urban planning & development, (Town and Country Planning, Improvement Trust and Development Authorities etc.) Development Control Regulations- zoning, sub-division regulations, building regulations and bye laws.
- Legislation for land acquisition and land ownership including rural and urban land ceiling Acts and their implications on development. Other schemes related to green field projects, Transfer of Development Rights
- Legislation on Conservation and Management of Ancient Monuments and Archaeological sites and ruins.
- Objectives, contents and procedures for preparation and implementation of Regional plans, development plans, Concepts and theories of planning and their applications as Master Plans, Development Plans, Structure Plans etc. Town Planning Schemes, Area Plans etc.
- Role and responsibility of planning consultants, professional ethics, code of conduct and scale of professional charges.
- Public participation in planning process

**Assignments:** The internal assessment should preferably be related 1).To the design studio surveys or on-site information for which can be conducted during the site surveys for the design studio.  
2. To the study of legislation, procedures of plan preparation for the select site for the design studio.

### **UDC-08 Foundation Course I : Research**

The objective of this subject is to make students independent to design research projects & to come to certain conclusions.

Unit 1: Meaning of research in Urban design

Unit 2: Concepts of Urban design evolved in various part of the world.

Unit 3: Indian traditional research methods.

Sessional work: Assignments, tests, market survey etc.

### **UDE-02 Swayam Online Course:**

**SWAYAM** (Study Webs of Active-learning for Young Aspiring Minds); India Chapter of Massive Open **Online Courses**. **SWAYAM** is an indigenous developed IT platform, initiated by Government of India, which is instrumental for self-actualisation providing opportunities for a life-long learning. It offers various courses in Architecture & Planning.

The curriculum based course contents shall also cover diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities subjects, engineering, technology, law, medicine, agriculture etc. in higher education domain (all courses would be certification-ready in their detailed offering).

### **UDE-03 Advanced Computer applications in spatial analysis:**

The **objective** is to introduce to theories, techniques and advanced computer softwares related to agent based modelling, object oriented modelling, visual field analysis. It will also focus on various theories related to understanding of cities through modelling such as space syntax, Fractal cities, complexity theories and others. Computer based tools for modelling, simulation and decision making for urban design; explaining their theoretical base, will be practiced in the studio problem or other assignments.

The **assignments** shall be preferably linked with parallel running design studio.

### **UDE-03 Urban Nature and city design:**

The **objective** of the course is to place urban design within the framework of environmental issues as well as to provide an overview of efforts to mitigate the negative inputs from development.

- Environment and Ecology: an introduction, notions of carrying capacity, Human-nature interaction, Definitions of environmental planning terms
- Ancient historical concepts of “city as one with nature”.
- Environmental issues with respect to current problems like global warming, Degradation of forests, Land and water, housing resources and its impact on urban environments, city design, management of resources, climate change-how urban design play role in this dynamic natural world.
- Strategies and concepts of sustainable development for resource conservation as relevant to settlement planning & design
- Legislation on Conservation of natural resources including Mining and Forestry Acts
- Case studies of meaningful urban design responding to nature and ecology

The **assignments** shall be related to case study of ecologically sensitive urban area.

## **Semester III**

### **UDC-09 Design Studio III:**

The studio exercise will **focus on** inner city regeneration in urban core areas issues related to critical programme development, urban conservation, economic and environmental considerations, and infrastructure development, social and political forces. The involvement of user groups and decision making agencies as a part of the project formulation and appraisal should be encouraged. Brown field sites may also be chosen for the exercise.

**Studio Work:** The studio will focus on development of design guidelines through site studies, analysis, relevant literature survey and case studies.

### **UDC-10 Contemporary urban form:**

The **objective** of the course is to create an understanding of the reproduction of contemporary culture in the post-colonial city resulting from interdisciplinary participation drawn from sociology, history, cultural studies and political analysts. this subject is the succession of theory of urban form.

- The course contents include:
- Cross-cultural influences in city development – Amos Rapoport
- Concepts of Global City
- Urbanism, colonialism and the world economy and development of City as a human network - social structure and urban form – Manuel Castells
- Cities of uneven economic development, Social access - territoriality, exclusion and inclusion, minority groups and the disadvantaged, children and the geographies of disability -
- The politics of globalization and liberalization and their manifestations in the post-colonial city Urban life-style diversity and spaces of consumption
- Contemporary culture - the metropolitan experience
- violence and urban space
- From the geographies of modernity to post-modernity and beyond, the case example of any Megalopolis and contemporary development trends across the world
- Contemporary trends in the Asian city, conflicts, contestations and hybridization within the multilayered urbanities of Indian cities

**Assignments:** Extensive readings will be prescribed weekly and students would write response piece every week. Discussions on the response pieces will amount to internal assessment of the student for the subject.

### **UDC-11 Urban renewal and conservation:**

Urban renewal and conservation are critical to the recycling and revival of certain city areas, the **objective** of the course is to equip the students to deal with developments in existing cities.

- Historic overview of urban renewal
- Development strategies for regeneration of inner city areas, recycling, renewal, etc.
- Case studies of urban renewal, adaptive reuse and Brown Field projects in India and abroad

- Infrastructure up gradation, economic regeneration, financing and management of urban renewal schemes
- Introduction to conservation, heritage, concepts of historic zones and world heritage sites
- Principles of conservation and successful practices in conservation in India and abroad
- Importance of Charters, Archaeological Acts, Conservation Acts and Legislation
- Concepts and approaches to urban conservation in India, UK and Europe
- Heritage tourism and conservation
- Institutional framework for urban conservation and renewal strategies in India

**Assignments:** The subject shall culminate into end term paper written by student on the chosen topic with periodic discussions with concerned faculty.

### **UDC-12 Landscape design & Sustainable Development & EIA:**

The **objective** of the course is to inform the student about the importance of Landscape architecture today enjoys greater potential for educational interchange with other design fields such as urban design and architecture than at any time in its history. As a design medium that positively contributes to the complexities of the contemporary city and to a more equitable distribution of ecological and environmental resources, landscape architecture in urban design education is examined through its role in the creation of civic spaces and their natural and built urban character.

Its also important to inform the student of the latest theories and techniques available as tools for design and development, create awareness of the legislative mechanisms for environmental protection and Environmental Impact Assessment (EIA) methods and procedures. Concern for the protection of the natural environment and the techniques for sustainable development applied to urban design, planning and architecture are of critical importance today and indispensable in the future.

The course contents include:

- Overview of International and National policies and Programmes - Stockholm Conference,
- Buntland Commission, Earth Summit, Agenda 21, Habitat I & II etc. and emerging issues
- Environmental Planning techniques - analysis of carrying capacity, ecological footprint and land suitability, vulnerability assessment and microzonation, pollution modeling, eco city development etc.
- Case studies of application of concepts at various scales - regional, settlement and buildings (emphasis on urban eco systems green buildings, pollution control, energy use, water harvesting, waste treatment, solid waste management etc.)
- Statutory Acts, regulations and Notifications (coastal zone regulations, pollution control Act etc.)
- Definition of Environmental Impact assessment, methods of EIA, procedures - formats,
- Important clearances, time frame, legal framework of EIA

**Assignments:** Seminar on the chosen topic of interest will be worked out and presented at the end of the semester in this subject. Periodic assessment shall be scheduled to keep the constant progress of the seminar.

### **UDC-13 Foundation Course II : Research**

Objective

Unit 1: Research in Urban design.

Unit 2: Basic Urban design (skill, knowledge & design)

Unit 3: Transmission of knowledge for skill.

Unit 4: Transmission of knowledge for research on design.

Unit 5: Building research & development- (a) object, scope & basic principles, (b). Different types of research in architecture (c) Action Research (d). Fundamental & Applied Research (e). Historical Research.

Sessional work: Assignments, tests, etc.



## **UDC-14 Housing and real Estate Developments:**

The **objective** of subject is to understand the dynamics of traditional and contemporary housing and the emerging housing scenario in India as housing constitutes almost one half of our cities. Housing is produced in a variety of ways and is a reflection of settlements ethnic, social and economic groups. It will give overview of housing scenario in India, types of housing, demand and shortage with focus on:

- Traditional housing stock, its contemporary condition and transformations
- Rent control laws, subdivision of property and its effect on traditional housing
- Social housing scenario and the role of the State Governments & NGO's
- Slums and squatter settlements, schemes for rehabilitation and improvement
- Definition of real estate – physical, financial and social perspectives Comparison of real estate to other investment avenues Real, local, national and global factors affecting real estate
- History of development of real estate in Indian metros. The 90's boom and what followed Key drivers of the metropolitan real estate market
- Concepts of real estate analysis Mapping supply to understand markets Property grading, factors affecting grading and the relevance of such grading, relevance of design in grading
- Role of real estate developers and private builders in the housing sector, comparison with other Asian cities
- Critical overview of the contribution of Central and State Governments, HUDCO, State Housing Boards, Development Authorities, etc. in the production, control and management of housing

**Assignment:** Case study of a real estate development/ slum rehabilitation/social housing/housing by state housing boards with respect to user group, financing, market dynamics, design and planning, phasing, post occupancy evaluation

## **Semester IV**

### **UDC-15 Design Thesis or Research Thesis:**

The culmination of student work, the design thesis is an independent design on a topic defined by the student, leading to the development of a clear design proposal to be supervised by a faculty team and evaluated by an external jury. It should have strong theoretical base and analyze relevant successful design demonstrations through case studies.

### **OR**

The thesis by research is an independent research on a topic defined by a student, to be completed in the form of a comprehensive report under the supervision of an advisor and evaluated by an external jury. It will use appropriate research methodologies such as conducting of surveys, identifying case studies etc.

### **UDC-16 Future Urbanism:**

This course is the gradual progression of contemporary urban form. The course will critically review philosophies and projections made in urban design, architecture and planning projects and the views of social and political scientists, economists etc. for the future of urbanism and city dynamics. The intent is to identify the issues of present and immediate future faced by architecture and urban design. Study of concrete design techniques employed by various architects, such as the abolition of buffer spaces, the development of long-distance perspective view lines, the redesign of infrastructure systems, enclave formations and iconic buildings etc. will contribute to subject matter. The subject will explore how certain kind of urbanism fails or reinvent itself in various forms of manifestations.

The seminar focuses exclusively on texts and projects of a particular lineage of architects and planners, from India and the West through a series of concrete, discrete, tangible interventions. They include among -----.

**Assignments:** Students will present a seminar on critical analysis of contemporary and projected urban initiatives with an emphasis on India and Asian cities, studied through case studies. This presentation will serve as the foundation for a term paper, which is to include both text and drawings.

### **UDC-17 Urban Project and Systems Management:**

With the introduction of large urban design and development projects in India, particularly under public-private partnerships, the importance of project planning its role in management and execution has become critical to its success. The **objective** of the subject is to educate the students of the various methodologies, policies and financial frameworks. The course work includes

- Project formulation, definition
- Norms, standards, aspects and methods of project appraisal
- Concepts of Project management, systems, frameworks and techniques
- Implementation strategies, scheduling, activities, progress reviews, corrective actions etc
- Economic and financial feasibility concepts and methods
- Project funding, economic feasibility and methods of recovery

- Mandatory legal and environmental approvals
- Special projects such as Special economic zones, export processing zones, townships etc.

**Assignments:** Case studies of successful projects and planning schemes are encouraged to be used as learning models.

### **UDC-18 Training in urban Design or case studies:**

Each student shall have to undergo professional training for a period of at least 8 weeks in an establishment approved by the institute.

The practical training will commence during the summer break between second and third semester or even can be completed winter break between third and fourth semester. A student will be required to submit a performance report from the firm/organization under which training is undertaken as well as a detailed report on the work carried out by him during the training. The work scope may include master plan for urban area, zonal district plan, sector/ neighborhood; layout, group-housing schemes, commercial centers, industrial estates, etc. Consultancy agreements and safeguards, urban design programme development, fees and scales of professional charges, coordination of various authorities

**Or**

Case studies in urban design can be done to understand the advanced level of documentation and analysis of complex urban conditions. This course will also serve as initiation into probable topics and thrust area identification for their thesis in fourth semester.

Students will have to select and analyze an urban precinct, district which has its chronological changes in terms of built form, culture, politics etc. They are required to map the present conditions, bring out current issues and problems of the area and present a report in the form of drawings, maps, photographs, graphics etc by critically analyzing existing scenario. Students can also select an ongoing urban/ environmental/regional planning/ design project anywhere in India or abroad and carry out a study through critical appraisal by conducting actual site visits and surveys.

The external Jury will award the marks for the practical training on the basis of viva-voce examination of the student on the work rendered by the student during training.