



MGM University
Jawaharlal Nehru Engineering College, Aurangabad
Department of Architecture

Curriculum framework

Master of Architecture (General)
(With effect from Academic Year 2020-2021)



Draft Syllabus for Master of Architecture (General)
To be implemented from academic year 2020-21

INSTITUTE VISION

To create self-reliant, continuous learner & competent technocrats imbued with human values.

INSTITUTE MISSION

Imparting quality technical education to the students through participative teaching-learning process.

Developing competence amongst the students through academic learning and practical experimentation.

Inculcating social mindset and human values amongst the students.

DEPARTMENT OF ARCHITECTURE VISION

The Department of Architecture will strive to become one of the best Institutes imparting Architectural Education in the country. Efforts will be made to inculcate in the students the importance of research in Architecture and also cherish values in life in today's context.

DEPARTMENT OF ARCHITECTURE MISSION

To create a humane environment for better living and happy life of human beings. Emphasis will be on sustainable development and to make conscious efforts for the concept of Green Buildings.



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PROGRAM EDUCATIONAL OBJECTIVE (PEOs)

1. The M. Arch (General) program is an envelope to advanced knowledge and techniques of various disciplines of Architecture.
2. The program enhances the professional and personal skills of a student with a focus on various disciplines of Architecture such as Architectural design, Urban Design, Urban planning, Building codes and bylaws and Architectural conservation, etc.
3. The program also addresses the current approach towards sustainable Architecture and Hi – Tech detailing for better and greater performance.

PROGRAM SPECIFIC OBJECTIVE (PSOs)

At the end of the program, the student:

PSO1: Will become an Independent Practicing Architect who can come-up with the holistic and innovative solutions to the problems and needs of the society.

PSO2: Will contribute the knowledge and research in the Architecture profession.

PSO3: Can be a part of an organization that will deal with societal, health, safety, legal, and cultural issues as a large challenge.

PROGRAM OUTCOMES (POs)

1. **Architectural knowledge:** Learn and Apply the knowledge of all the subjects related to Masters of Architecture along with the healthy environment of society and Human beings.
2. **Problem analysis:** Identify, formulate, research literature, and analyse the issues during designing by taking cognizance from case studies for achieving sustainable and user-friendly design solution.
3. **Design/development of solutions:** Solutions for complex design problems and propose a service system with sustainable approach that meet the specified needs with appropriate consideration for public health and safety, Housing, Public transportation,

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art, cultural, societal, and environmental considerations along with economy and aesthetics.

- 4. Conduct investigations of complex problems:** The problems are:
 - That cannot be solved by straightforward application of knowledge, theories and techniques applicable to the Architectural discipline.
 - That may not have a unique solution. For example, an environmental solution can be applied in many ways and lead to multiple possible solutions.
 - That requires consideration of appropriate constraints (Climatic, Topography, Environmental and Economy) / requirements not explicitly given in the problem statement. (Like: cost, energy requirement, durability, Material life, expertise is expected for any Solution etc.).
 - Which need to be defined within appropriate statistical methodology framework.
 - That often requires use of modern computational concepts and tools.
- 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern designing, simulation or analysis tools, including prediction, modelling and assessment to complex Environmental Architectural design, urban design or environmental planning, with an understanding of the limitations.
- 6. The Architects and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal, and cultural issues and the consequent responsibilities relevant to the professional Architectural practice.
- 7. Environment and sustainability:** Understand the impact of the professional environmental solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. Ethics:** Apply ethical principles and commitment to professional ethics responsibilities and norms of the Architectural practice through bylaws, morals, code & conducts.
- 9. Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10. Communication:** Communicate effectively on complex Environmental and Architectural activities with the Professional Architects and with the society at large,



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such as, being able to comprehend and write effective reports and design documentation, make effective presentations, certifications (to give and receive clear instructions).

- 11. Project management and finance:** Demonstrate knowledge and understanding of the Architectural field and Project and Construction management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

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PEO / PO Mapping

PROGRAMME EDUCATIONAL OBJECTIVES	PROGRAM OUTCOMES												
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
I	✓	✓	✓		✓		✓	✓					
II				✓	✓	✓	✓	✓	✓	✓			
III			✓			✓	✓		✓	✓	✓	✓	✓

Year	Sem	Course Name	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	
I	I	Architectural Design Studio	✓	✓	✓	✓	✓	✓				✓		✓	
		Sustainable Architecture		✓	✓					✓					
		Contemporary and Futuristic Architecture	✓	✓											
		Building Byelaws, Codes & Legislation			✓						✓				
		Computer Aided Design & Planning						✓							
		Elective - I								✓	✓		✓		
	II	Applied Design Studio	✓	✓	✓	✓	✓	✓	✓				✓		✓
		Advanced Landscape Design & Materials	✓			✓									
		Urban Design		✓						✓			✓		
		Research Methodologies					✓				✓				
		Project Management				✓							✓	✓	
		Elective - II								✓	✓		✓		
II	III	Integrated Design Studio	✓	✓	✓	✓	✓	✓				✓		✓	
		Urban planning		✓								✓			
		Architectural Conservation		✓		✓				✓					
		Building Materials & Technologies			✓		✓								
		Dissertation - I		✓	✓		✓	✓							✓
		Elective - III								✓	✓		✓		
	IV	Dissertation - II		✓	✓		✓	✓							✓

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PROGRAM OVERVIEW

Master of Architecture (General) is a Two-years post-graduate program approved by the Council of Architecture, New-Delhi. The program is designed for 2 years full time with Choice based credit system. The 2 years program are demarcated into 4 semesters followed with 100 credits. The assessment criteria based on the grading system and carried out at the end of every academic semester.

Master's Program in Architecture (General)					
Program	First Year Sem I	First Year Sem II	Second Year Sem III	Second Year Sem IV	
PROFESSIONAL CORE COURSES	<ul style="list-style-type: none"> Architecture Design Studio 	<ul style="list-style-type: none"> Applied Design studio 	<ul style="list-style-type: none"> Integrated Design studio 		
PROFESSIONAL ABILITY ENHANCEMENT COMPULSORY COURSES	<ul style="list-style-type: none"> Sustainable Architecture & Design Contemporary & Futuristic Architecture Building Bylaws, Codes & Legislation 	<ul style="list-style-type: none"> Urban Design Advanced Landscape Design & Materials 	<ul style="list-style-type: none"> Architectural Conservation Urban Planning Building Materials & Technologies 		
SKILL ENHANCEMENT COURSES	<ul style="list-style-type: none"> Computer Aided Design & planning 	<ul style="list-style-type: none"> Project Management Research Methodologies 	<ul style="list-style-type: none"> Dissertation – I (Synopsis and Research paper writing) 	<ul style="list-style-type: none"> Dissertation-II Research Paper writing and Publishing 	
ELECTIVE	PROFESSIONAL ELECTIVE				
	<ul style="list-style-type: none"> Environmental Planning Inclusive Architecture Energy Efficient Buildings 	<ul style="list-style-type: none"> Re Architecture Architectural Criticism Urban Land Economics and Valuation 	<ul style="list-style-type: none"> Sustainable housing policy Traffic & Transportation Planning Tall Building 		
	OPEN ELECTIVE				
	<ul style="list-style-type: none"> Disaster Mitigation and management 	<ul style="list-style-type: none"> GIS and Terrain Mapping 	<ul style="list-style-type: none"> Post Occupancy Evaluation 		
<ul style="list-style-type: none"> Professional Electives are specialized, advanced and supportive subjects to enhance the academic knowledge. Open Elective Courses approved by the Institution/University from subjects of study other than Architecture which will add value to the program. 					

MOOC COURSE – ONLINE MODE

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Teaching and Evaluation Scheme for First Year M. Arch (General)

Semester I										
Course Code	Course	Teaching Scheme		Evaluation Scheme						
		L	S	CA1	CA2	ESE-Paper	ESE-STW	ESE-SV	Total	Credits
MAR20111	Architectural Design Studio	1	6	125	125	NIL	NIL	250	500	10
MAR20112	Sustainable Architecture	2	4	50	50	100	NIL	NIL	200	4
MAR20113	Contemporary and Futuristic Architecture	2	4	50	50	100	NIL	NIL	200	4
MAR20114	Building byelaws, codes & legislation	2	2	25	25	100	NIL	NIL	150	3
MAR20115	Computer aided design & Planning	2	2	25	25	NIL	100	NIL	150	3
	Elective - I	1	2	25	25	NIL	50	NIL	100	2
MAR20116A	Environmental planning									
MAR20116B	Inclusive Architecture									
MAR20116C	Energy Efficient Buildings									
MAR20116D	Disaster Mitigation and management									
Total		10	20						1300	26

List of Abbreviations

S.No.	Acronym	Full Form
1	L	Theory Lecture/Hours per week
2	S	Studio/Hours per week
3	CA1	Continues Assessment up to mid of semester
4	CA2	Continues Assessment from mid to end of semester
5	ESE-(TH) Paper	End semester Examination -Theory Paper
6	ESE-(SV)	End semester Examination -Sessional Viva
7	ESE-(STW)	End semester Examination Sessional Term Work Assessment

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Teaching and Evaluation Scheme for First Year M. Arch (General)

Semester II										
Course Code	Course	Teaching Scheme		Evaluation Scheme						
		L	S	CA1	CA2	ESE-Paper	ESE-STW	ESE-SV	Total	Credits
MAR20121	Applied Design studio	1	6	125	125	NIL	NIL	250	500	10
MAR20122	Advanced Landscape Design & materials	2	4	50	50	100	NIL	NIL	200	4
MAR20123	Urban Design	2	4	50	50	100	NIL	NIL	200	4
MAR20124	Research methodologies	2	2	25	25	100	NIL	NIL	150	3
MAR20125	Project management	2	2	25	25	NIL	100	NIL	150	3
	Elective - II	1	2	25	25	NIL	50	NIL	100	2
MAR20126 A	Re Architecture									
MAR20126 B	GIS & Terrain Mapping									
MAR20126 C	Architectural Criticism									
MAR20126 D	Urban land economics and valuation									
Total		10	20						1300	26

List of Abbreviations

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1	L	Theory Lecture/Hours per week
2	S	Studio/Hours per week
3	CA1	Continues Assessment up to mid of semester
4	CA2	Continues Assessment from mid to end of semester
5	ESE-(TH) Paper	End semester Examination -Theory Paper
6	ESE-(SV)	End semester Examination -Sessional Viva
7	ESE-(STW)	End semester Examination Sessional Term Work Assessment

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Teaching and Evaluation Scheme for Second Year M. Arch (General)

Semester III										
Course Code	Course	Teaching Scheme		Evaluation Scheme						
		L	S	CA1	CA2	ESE-Paper	ESE-STW	ESE-SV	Total	Credits
MAR20231	Integrated Design Studio	1	6	125	125	NIL	NIL	250	500	10
MAR20232	Urban Planning	2	4	50	50	100	NIL	NIL	200	4
MAR20233	Architectural Conservation	2	4	50	50	100	NIL	NIL	200	4
MAR20234	Building Materials and Technologies	2	2	25	25	100	NIL	NIL	150	3
MAR20235	Dissertation - I	2	2	25	25	NIL	100	NIL	150	3
	Elective - III	1	2	25	25	NIL	50	NIL	100	2
MAR20236A	Post Occupancy Evaluation									
MAR20236B	Tall Building									
MAR20236C	Sustainable housing policy									
MAR201236D	Traffic and transportation planning									
Total		10	20						1300	26

List of Abbreviations

S.No.	Acronym	Full Form
1	L	Theory Lecture/Hours per week
2	S	Studio/Hours per week
3	CA1	Continues Assessment up to mid of semester
4	CA2	Continues Assessment from mid to end of semester
5	ESE-(TH) Paper	End semester Examination -Theory Paper
6	ESE-(SV)	End semester Examination -Sessional Viva
7	ESE-(STW)	End semester Examination Sessional Term Work Assessment

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Teaching and Evaluation Scheme for Second Year M. Arch (General)

Semester IV										
Course Code	Course	Teaching Scheme		Evaluation Scheme						
		L	S	CA1	CA2	ESE-Paper	ESE-STW	ESE-SV	Total	Credits
MAR20241	Dissertation - II	1	14	250	250	NIL	NIL	600	1100	22
Total		1	14						1100	22

List of Abbreviations

S.No.	Acronym	Full Form
1	L	Theory Lecture/Hours per week
2	S	Studio/Hours per week
3	CA1	Continues Assessment up to mid of semester
4	CA2	Continues Assessment from mid to end of semester
5	ESE-(TH) Paper	End semester Examination -Theory Paper
6	ESE-(SV)	End semester Examination -Sessional Viva
7	ESE-(STW)	End semester Examination Sessional Term Work Assessment



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Master of Architecture (General)
Course Detailing
First Year - Semester I
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Course: Architectural Design Studio

COURSE TEACHING SCHEME:

Course Code – MAR20111							First Year	
Course Type: Professional Core Course							Semester - I	
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE / STW	ESE-SV	Total	Credit
1	6	125	125	NIL	NIL	250	500	10

COURSE OBJECTIVE:

- The Course focuses on multiple facets and relationships between design and Built-Environment at City level.
- It aims to extend the student knowledge and skills through Conception, Communication, Development and Presentation and develop Design proposal accordingly.
- Understanding the current Architectural issues, originality in the application of subject knowledge.
- Understanding User behaviour in Built Environment.

COURSE OUTCOME:

- The Students able to provide the Hypothesis and speculation at professional level.
- Students can evaluate and apply a comprehensive range of visual, Oral, critically analyse and can explain Design proposal at City/urban Level.
- Individual Development, Awareness

COURSE CONTENT:

Module – I: Design Brief

- The Architectural Design Studio brief should focus on the Design proposals like: residential, educational, commercial and Recreational buildings, Office buildings, Multi-use centre, Convention centre, Multiplex, Corporate complex, Health care and Hospitality building, transportation hub, etc.
- The Architectural Design should focus on the Multiple Design methods with Innovative and Contextual response to the given/Proposed conditions.
- Assessing a potential site for development through site analysis.
The Design studio should focus on the following aspects:
 - Need, Scope and Demand of the proposed Design project.
 - Case-studies to authenticate the Design Pedagogy.



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- Design accordingly with the site conditions considering slope, soil Condition, hydrology, vegetation, parcel, orientation of the building
- Developing the Human and ergonomics relation aspect
- Evolving technologies of construction in the Design
- Integration of the Built Environment
- Environmental Performance
- Ownership, management and maintenance
- Application of Building codes and bye laws.
- Structural Design and its analysis
- Understandable and Productive way of producing conceptual and final drawings.

COURSE ASSESMENT DETAILS:

Student should follow the stages of Architectural Design Studio addressed below and should produce on A1 size sheet.

- Conceptual layouts,
- Progressive Drawings using software's,
- Working Model
- Final sheets
- Final Model

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

1. Edward D. Mills: Planning for Architects
2. Time Saver Standards from Building Types
3. Building and Construction Authority, "Existing Building Retrofit", Singapore

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Course: Sustainable Architecture

COURSE TEACHING SCHEME:

Course Code – MAR20112							First Year Semester - I	
Course Type: Professional Ability Enhancement Compulsory Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE / STW	ESE-SV	Total	Credit
2	5	50	50	100	Nil	Nil	200	04

COURSE OBJECTIVE:

The course “Sustainable Architecture” aims to provide the opportunity and exposure to Sustainability, to understand impacts and issues of built environment and sustainability and its application in Design.

COURSE OUTCOME:

Students will identify & understand the concept of sustainability, its usability in the process of design. Also, students will be exposed to various sustainable solutions which will help them in Architectural design process.

COURSE CONTENT:

Module – I: SUSTAINABILITY

- Introduction to sustainability in Architecture
- Different Aspect of Sustainability in Architecture and sustainable design
- Tools of sustainability

CLIMATE & ARCHITECTURE

- Climate and weather, climate classification, climatic scales. and climatic assessment including collection and analysis of climatic data
- determination of appropriate design techniques

Module – II: PASSIVE STRATEGIES FOR DAYLIGHT & VENTILATION



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- Site selection, air movement, day lighting & orientation, Building envelope, fenestration pattern.
- Principles of day-lighting, architectural integration in different building types; daylight quality; sky view factor and daylight factor
- Bioclimatic approach.

Module – III: STRATEGIES AND TECHNOLOGIES

- Assessment of existing resources; Solar architecture; Recycling/reuse strategies
- Optimization techniques; Advances in HVAC, lighting, electrical and plumbing, active systems;
- Sustainable

Module – IV: SUSTAINABILITY ASSESSMENT RATING SYSTEMS

- Study of rating systems; Strategies to earn credits;
- Life Cycle Assessment- concept, terminologies, Methodologies, tools and processes; Carbon footprint.

NET ZERO ENERGY AND ENERGY POSITIVE BUILDINGS

- Definition, concept, strategies, case studies.

COURSE ASSESSMENT DETAILS:

- Suitable assignments, studio work, case studies for all will be conducted
- Critical analysis, theory assignments, studio work, case study presentations etc

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Mcharg, I. L., “Design with Nature”, John Wiley and Sons Inc., 1992
- Suzuki, D., “The Sacred Balance: Rediscovering Our Place in Nature”, Greystone Books, Douglas and McIntyre Publishing Group, 2007.
- Speth, J. G., “The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability”, Yale University Press. 2008
- Yudison, J., “The Green Building Revolution”, Island Press.2008.
- Knight, A. and Ruddock, L., “Advanced Research Methods in Built Environment”, Wiley-Blackwell.2008
- Bruggmann, J., “Welcome to Urban Revolution: How cities are changing the world”, Bloomsbury Press,2009.



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- Climate Responsive Architecture by Arvind Krishan, Nick Baker, SimosYannas, S.V. Zokole.
- Manual of Tropical Housing and Building by O.H.Koenigsberger, T.G.Ingersoll& other.

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Course: Contemporary and Futuristic Architecture

COURSE TEACHING SCHEME:

Course Code – MAR20113						First Year Semester - I		
Course Type: Professional Ability Enhancement Compulsory Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	4	50	50	100	Nil	Nil	200	4

COURSE OBJECTIVE:

To study new concepts of contemporary architecture which are the result of changing parameters of technology, ecology, urbanization, social pattern on architecture.

To impart the students about new building materials, future building technologies, concepts of futuristic architect, various futuristic architectural concepts by some of the architects in the profession, concept of creative cities, principles of planning for futuristic city.

Updating comprehensive knowledge in the field of Architecture.

COURSE OUTCOME:

Gaining knowledge with respect to contemporary and futuristic phase of architecture.

Knowing current Architectural trends and style.

COURSE CONTENT:

Module – I:

- Blobitecture, Critical Regionalism, Deconstructivism, Futurist architecture, High-tech architecture, Modern architecture, Neo modern architecture, Novelty architecture, Postmodernism, Conceptual architecture, Neoclassicism etc all the above mentioned styles should be studied in the manner of its origin (timeline and place), special characteristics, pioneer Architects with their globally renowned work.



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Module – II: Overview of world architecture since 1970 with the study of Late Modernism, Post Modernism and Deconstructivism. Theories governing contemporary architecture through case studies, evolving architectural trends and their impact on urban built environment. Emerging building typologies with emphasis on residential developments, offices, skyscrapers, institutional and public buildings.

Module – III: Future concepts envisioned by Antonio Saint Elia, Frank Lloyd Wright, Corbusier. Future trends being evolved by Marcos Novak, Neil Denari, Greg Lynn, Toyo Ito and others. Evolution of contemporary architectural concepts such as biomimicry, adaptive reuse, low cost development and urban regeneration

Module – IV: Futuristic building materials, building tectonics and systems of the future “Zero energy” and “Energy +” buildings with emphasis on an integrated approach. Socio-cultural and economic impacts of future urban habitats.

COURSE ASSESSMENT DETAILS:

Notes on above topics in the file to present the findings through exercises or any other way for the analysis. Power Point Presentations on above topics in groups.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

S. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Ballard B. and Rank, V. P., “Materials for Architectural Design”, Laurance King.	2006
2.	Frampton, K., “Modern Architecture-A Critical History”, 3rd ed. Thames and Hudson..	2002
3.	Gossel, P. and Leuthauser, G., “Architecture in the 20th Century”, Vol. 1, Taschen.	2005
4.	Gossel, P. and Leuthauser, G., “Architecture in the 20th Century”, Vol. 2, Taschen.	2005
5.	Troman, R. (ed.), “History of Architecture, From Classic to Contemporary”, Parragon.	2009
6.	Bell, J., “21st Century House”, Laurence King Publishing.	2006
7.	Jodidio, P., “Building a New Milleneum”, Vol.1 Taschen	2003



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8. Jodidio, P., “Architecture Now”, Vol. 2, Taschen. 2004
9. Modern, Post Modern, Architecture and Pioneer Architects
By Vedula V N L Murthy- Standerd publishers distributers.

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Course: Building byelaws, codes & legislation

COURSE TEACHING SCHEME:

Course Code – MAR20114							First Year Semester - I	
Course Type: Professional Ability Enhancement Compulsory Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	2	25	25	100	Nil	Nil	150	3

COURSE OBJECTIVE:

To make students understand the effect of byelaws and various codes on the Built environment .

To make students understand need of byelaws as a tool for planned development of city.

COURSE OUTCOME:

Gaining knowledge about byelaws and understanding of Urban, regional and rural settlements.

COURSE CONTENT:

Module – I:

Introduction to urban planning and concept of urban areas, rural areas, regional areas, fringe area developments, and related aspects. Various land uses in this context.

Module – II:

Understanding making of byelaws for builtup environment.

Understanding role of various local bodies , towns, cities and development authorities e.g. Municipal-corporation, MIDC, CIDCO, special planning authorities etc.

Module – III:

MRTP acts/ state town planning act. Planning and byelaws related aspects of any one of cities eg: Navi Mumbai, Delhi plan, New Aurangabad, Chandigarh or any other suitable city.

Module – IV:



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Project work- study of land uses through site visit to suitable city in discussion with concern subject expert.

COURSE ASSESSMENT DETAILS:

Case studies in groups, analyzing above concepts, making site visits to city, understanding and preparing project reports.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sr. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1.	Development Controls/ Building Byelaws of various Development Authorities of Indian cities.	
2.	Namavati, R. H., "Professional Practice with Elements of Estimating, Valuation, Contract and Arbitration" Lakhani Book Depot.	2009
3.	Orr F., "Professional Practice in Architecture", Van Nostrand Reinhold.	1982
4.	Demkin J. A., "Architect's Handbook of Professional Practice; Ethics and the Practice of Architecture", 14th ed. John Wiley & Sons.	2001
5.	Bureau of Indian Standards, "National Building Code (NBC)"	2005
6.	Puri V.K, "Compendium of Delhi Building Bye-laws and Development regulations as per Master Plan of Delhi 2021", Nabhi Publication.	2007

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Course: Computer aided design & planning

COURSE TEACHING SCHEME:

Course Code- MAR20115						First Year Semester - I		
Course Type- Skill Enhancement Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	2	25	25	Nil	100	Nil	150	3

COURSE OBJECTIVE:

To educate the students to use different software helping in planning & designing.

To educate students with the functionality of various software's throughout the design process in their curriculum.

COURSE OUTCOME:

To understand the complexity of design student should be able to use varied software to visualize and analyze the building critically from the field of their interest.

To impart knowledge of GIS applications in architecture and planning projects.

COURSE CONTENT:

Module – I:

Visualization and Management software

Study detail application of various software such as Revit Architecture Suite including building information modeling (BIM) and exploration of visualization and presentation techniques. E.g. 3D Max, Sketchup, Podium and E-view.

Module – II:

Simulation and analysis software

Introduction to simulation software for the analysis of building for its performance, such as Design Builders or Eco-Tech, and other software related to same.



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Module – III:

Planning and Form analysis software

Introduction to software such as Grasshopper, Rhino6, M.S. Pro, Power Sim, MATLAB, Arc GIS for planning etc.

COURSE ASSESSMENT DETAILS:

Case studies, and trial projects as per the software requirement for unit II architectural design studio problem/s, modeling for a given project for unit I and III. Exercises can be decided according to software (One software in detail) taken where a small project can be tried in detail.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- | Sr. No. | Name of Authors/ Books/ Publishers |
|---------|--|
| 1. | Omura G., “Mastering Revit 2009”, Sybex Publication. |
| 2. | Omura G., “Bible 3D. Max 2009”, Sybex Publication. |
| 3. | Manuals of Sketchup, Podium, E-view, |
| 4. | Manuals of Design Builders and Energy Simulation Modeling. |
| 5. | Manuals of M.S. Pro and Power Sim. |
| 6. | Manuals of MATLAB and Arc GIS. |
| 7. | Latest Version of all the manuals as per the suggestions of master trainers. |

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Course: Elective – I –Environmental planning

COURSE TEACHING SCHEME:

Course Code - MAR20116A							First Year Semester - I	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To impart knowledge related to Environmental Planning (Natural and Built Environment), techniques, Policies and best practices following at Regional, Local and City level

COURSE OUTCOME:

The course develops the Understanding of environmental (Natural and Built) Planning and management in relation to the major principles of Sustainable development. Also helps to critically assess the theoretical and conceptual issues relating to environment at the Regional, City and Local level.

COURSE CONTENT:

Module – I– Introduction

- History - Evolution, Concept of Environmental Planning
- Theories of Environmental Planning

Module – II – Environmental Planning Policies and Regulations

- Environmental zones, problems and strategies for development
- Policies and their implications in Urban and Rural planning
- National & International policies and related interventions

Module – III –Environmental Protection and Management

- Environmental protection techniques and best practices
- Identification of authorities and practices at Regional, City and local level,
- Roles of local authorities and institutions.



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- Public participation.
- Role of architects and Urban planners in shaping the future environment.

COURSE ASSESSMENT DETAILS:

- Presentation on studies related with the National & International policies, their Implementation and effects on the Urban and Regional Planning(with the Case Studies.)& Role of architects and Urban planners in Planning Process.
- Report on above mentioned assignments.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Urban and Regional Development Plans Formulation and Implementation” (URDPFI) Guidelines, 2014
- Catlin, R. A, “Land use Planning, Environmental Protection and Growth Management”, Ann Arbor Press ,1997
- Campbell, G.S. and Norman, J.M., "An Introduction to Environmental Biophysics", Springer. 1998
- Randolph J., “Environmental Land Use Planning and Management”, Island Press, 2003
- Government of India, Guidelines for EIA 2011



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Course: Elective – I – Inclusive Architecture

COURSE TEACHING SCHEME:

Course Code - MAR20116B							First Year Semester - I	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

Social stratification is deeply entrenched within the Indian society. This has resulted in deprivation of access to the economical, cultural and educational resources to the disadvantaged groups of the society consisting of the minorities, urban poor, women, physically challenged, informal sector, migrants and the aged groups.

In order to create a built environment conducive to the inclusion of all sections of civil society, it is essential to understand their problems, study the components of social exclusion, inclusive policy and to formulate and apply principles through design and planning for their inclusion in society.

COURSE OUTCOME:

On successful completion of this course the student is expected to

- to have a basic understanding of the phenomenon of 'social exclusion'.
- to have an awareness about social inclusive policy and social policy perspectives.
- to understand the basic principles of inclusive development and be able apply them in the process of urban planning.

COURSE CONTENT:

Module – I: Understanding Social Exclusion and Dimensions of exclusion

Conceptualising Social Exclusion, Origin and Basis of Social Exclusion; Excluded Groups and Socio- Economic Disparities Forms of Social Exclusion. Dimensions of Exclusion.



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Contemporary Discussions on Social Exclusion

Module – II: Dimensions of inclusion

Civil society sections and needs, Access to shelter, services and facilities, livelihoods. Causative factors, determinants, Growth of informal sector, characteristics, functions, economic contributions and linkages with formal sector, Impact of exclusion on urban development issues of Identity and Human Rights Violation, Affirmative Action.

Module – III: Inclusive Policy Agenda: United Nations Organization, Constitutional Provisions, Relevant Acts. Nodal Government Agencies and Planned State Interventions; Social Choice and Human Rights Framework.

Module IV: Inclusive planning

Planning interventions for inclusion

Inclusive zoning, development and building regulations, slum improvement

Designing Innovative Strategies for Inclusion, public participation

COURSE ASSESSMENT DETAILS:

Exercises relevant to contemporary issues and context may be designed by the faculty.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sr. No.	Name of Authors/ Books/ Publishers
1	Byrne, David (2003), 'Social Exclusion: Issues in Society', Open University Press, 2005.
2	Hills John, Le Grand, J. and Piachaud, D (2002) (eds.), 'Understanding Social Exclusion', Oxford University Press.
3	Saith, R. (2001), 'Social Exclusion: The Concept and Application to Developing Countries', Queen Elizabeth House Working Paper Series 72, Queen Elizabeth House, Oxford.
4	Arrow, Kenneth, J., Sen, Amartya and Suzamura, K. (2002), 'Handbook of Social Choice and Welfare, Vol. 1, Handbooks in Economics 19', Netherlands, Elsevier.



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- 5 Rajendra Pandey (1997), 'Minorities in India: Protection and Welfare', APH
Publishing Corporations
- 6 Hasan, Zoya (2008), 'Politics of Inclusion: Caste, Minority, and Representation in
India', Oxford University Press, India.
- 7 Creighton. James L.(2005), "The Public Participation Handbook: Making Better
Decisions Through Citizen Involvement", Wiley publishers
- 8 Jain, AK,(2010) "Inclusive Planning and Social Infrastructure", Bookwell
Publications

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Course: Elective – I – Energy efficient buildings

COURSE TEACHING SCHEME:

Course Code - MAR20116C							First Year Semester - I	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To review energy efficient building technologies, understand scope of their applications and design an energy efficient building

To understand role of energy in architecture, to expose students to various concepts and systems related to energy efficiency in buildings.

COURSE OUTCOME:

On the successful completion of the course, students will be able to analyze building elements for energy efficiency – integration at building level.

On successful completion of this course students will be conscious about energy in architectural design and will be able to implement various techniques and systems to design energy efficient buildings, also will be aware of energy parameters in various green building rating systems.

COURSE CONTENT:

Module – I: ENERGY AND ARCHITECTURE

1. Energy scenario in world and India, Energy and environmental concerns, Sources of Energy.
2. Passive and Active ways of achieving energy efficiency in buildings, - passive cooling and sun control, day lighting, HVAC system, active solar & photovoltaic, bioclimatic design.
3. Nation-owner-designer- user concerns,



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4. Role of Climate and site in energy consumption of building, energy and building envelope, energy and building systems, embodied energy.
5. NET Zero Energy Buildings and Energy Positive Buildings.

Module – II: CODES AND STANDARDS-

1. ECBC2015
2. Ashrae 90.1, Ashrae fundamentals,
3. Energy credits under rating schemes, techniques to achieve credits

Module – III: MEASUREMENT AND VERIFICATION –

1. Energy audit of buildings- tools and techniques; Measurement and verification techniques; Benchmarking.

Module – IV: ENERGY AUDITING.

1. Building energy audit, exogenous- indigenous systems.
2. Introduction to simulation software,
3. Case studies of energy efficient Buildings and design consideration for sustainable and environment friendly architecture.

COURSE ASSESSMENT DETAILS:

End semester sessional term work

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sr. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1	ECBC 2015 MANUAL.	
2	ASHRAE 90.1 Energy Standard for buildings except low-rise residential buildings.	2013.
3	GRIHA Manual.	2015
4	IGBC Manuals.	
5	LEED India Manual.	
6	Energy Efficient Buildings in India by Mili Mujumdar.	
7	Scheer, H., “Energy Autonomy: The Economic, Social and Technological case for Renewable Energy”, Earthscan	
8	ASHRAE Handbook-Fundamentals	2013

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Course: Elective – I - Disaster mitigation and management

COURSE TEACHING SCHEME:

Course Code - MAR20116D							First Year Semester - I	
Course Type - Open Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

- a) The course “Disaster Mitigation and Management” aims to provide the overview of Natural and Man-made disasters and the Degree of vulnerability happen due to this. The course structure also focuses on the Challenges and opportunities through Mitigation, Preparedness, Response, Recovery and Humanitarian responses.
- b) Special Emphasis on Disasters related with the Urban Development

COURSE OUTCOME:

The course develops the understanding and knowledge in the field of Disaster mitigation and Management. It also develops the procedure which will help students to critically analyse the key concepts of Urban Disaster and management theory, Research, Policy and Practices by Local authorities.

COURSE CONTENT:

Module – I: Introduction to Disaster & Urban Development

- Defining Disaster, Defining Development: Discourse on inter-relations between development, Environment and Disaster
- Introduction to types of Disaster with reference to Urban Development
- Natural and Human Induced Disasters- Meaning and nature of disasters, their types and effects
- Disaster Determinants: Type of damage, Habitation pattern, Physiology and Climate consideration; Analysis



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Module – II: Disaster Management – Preparedness, Responses and Recovery

- **Preparedness:** Concept and Nature, Disaster Preparedness Plan, Prediction, Early warnings and safety measures to be taken, Understanding the role of Government authorities and NGO's support
- **Responses:** Disaster response plan, Communication, Participation and Activation of Emergency plan, Search-Rescue-Evacuation and Logistic management, Psychological response and management
- **Rehabilitation, Reconstruction and Recovery:** Reconstruction and Rehabilitation as a means of Development
- Guidelines for Disaster resistant construction, traditional techniques, Seismic strengthening of houses in low rain/High rainfall area, earthquake resistant construction technique.
- Study of the Govt. policies to deal with all types of the disasters.
- Disaster management mechanism - At National, State and District levels
- Study of Disaster Management Act.2005

Module –III: Disaster Mitigation

- Factors affecting the Mitigation
- Risk and Vulnerability Analysis: Concept, Strategic development for the Vulnerability reduction;

COURSE ASSESSMENT DETAILS:

- Students shall select a disaster that has happened in the past & analyse the probable causes, effect, preparedness & response w.r.t the selected disaster in Urban development.
- PowerPoint Presentation on the above assignment.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Dr. Mrinalini Pandey Disaster Management Wiley India Pvt. Ltd.
- Tushar Bhattacharya Disaster Science and Management McGraw Hill Education (India) Pvt. Ltd.



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- Jagbir Singh Disaster Management: Future Challenges and Opportunities K W Publishers Pvt. Ltd.
- J. P. Singhal Disaster Management Laxmi Publications.
- Shailesh Shukla, Shamna Hussain Biodiversity, Environment and Disaster Management Unique Publications
- C. K. Rajan, NavalePandharinath Earth and Atmospheric Disaster Management: Nature and Manmade B S Publication
- Blaikie, P, Cannon T, Davis I, Wisner B 1997. At Risk Natural Hazards, Peoples' Vulnerability and Disasters, Routledge
- Disaster Management Guidelines. GOI-UNDP Disaster Risk Reduction Programme (2009-2012).
- Disaster Management Act.2005.
- NDMA Policy Document



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Master of Architecture (General)
Course Detailing
First Year - Semester II
(With effect from Academic Year 2020-2021)

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To be implemented from academic year 2020-21

Course: Applied Design Studio

COURSE TEACHING SCHEME:

Course Code – MAR20121							First Year Semester - II	
Course Type: Professional Core Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE / STW	ESE-SV	Total	Credit
1	6	125	125	NIL	NIL	250	500	10

COURSE OBJECTIVE:

- To Expose students with design issues arising from a range of sectors and sources.
- To develop ability to analysis the issues and propose the design solution
- To impart deep understanding towards various complex factors arising while designing.
- To utilize the techniques and knowledge in the design proposal to achieve effective solution.

COURSE OUTCOME:

- Gaining skills, knowledge and experience related to the use of variety of analytical approaches for the design.
- An ability to investigate design issues.
- An ability to apply various parameters of the sustainable design of a project.
- An ability to apply learning about various inter disciplinary field in design projects.

COURSE CONTENT:

- The studio will focus on various complex design issues associated with the built environment across a range of building types and taking position to derive a set of workable ideas till its completion.
- Covering process of acquiring information in an appropriate and critical manner related to design.
- Techniques to derive optimal design solution based on analysis of existing schemes.
- An in-depth study on parameters of sustainability for design development of the project.



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COURSE ASSESSMENT DETAILS:

Design project of Large scale with in depth analysis of all elements is required. Number of assignments can be taken to present the findings through presentations, using learnt techniques or any other way for the analysis Sustainable housing scheme design as a design project for its optimal solution. The Design solution needs to be derived out of research / case studies and its synthesis. The Studio will emphasize on collaborative learning process.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sl. No.	Name of Authors/ Books/ Publishers	Year of Publication
1.	Smith P F & Pitts A C, "Concepts in Practice: Energy"Batsford,	1997
2.	Cofaigh E O, Olley J A & Lewis J O "The Climatic Dwelling"James & James Publishers,	1996

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Course: Advanced Landscape Design & Materials

COURSE TEACHING SCHEME:

Course Code – MAR20122							First Year Semester - II	
Course Type: Professional Ability Enhancement Compulsory Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	4	50	50	100	Nil	Nil	200	4

COURSE OBJECTIVE:

Exploring relationships between living organisms and their environment with human trying to find his niche as an integral part of nature while understanding an inevitable bond between man and nature through some design attitudes.

COURSE OUTCOME:

Students should design landscape spaces efficiently according to regions.

Students should be able to do Site Planning and Integrated Design.

COURSE CONTENT:

Module – I:

Perception and relevance of Art in landscape design (Land art, art in public spaces, etc) for. Eg.works of Andy Goldsworthy, Richard Shilling, Walter Mason, Jim Denevan, Robert Smithson, Andrew Rogers, Dani Caravan, Simon Beck, Anish Kapoor, Neckchand, Subodh Kerkar.

Module – II:

Changing relationship of Man-nature through historical overview. Study of various landscape design traditions as precedents in history from different spatial and temporal context.

Module – III:



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Site analysis including understanding natural and manmade aspects (such as microclimate, topography, hydrology, vegetation), physical and socio-cultural context of the site. Introduction to environmental concerns and sustainable site planning (rain water harvesting, solid waste management, passive climate control, etc)

Module – IV:

Study of Hardscape (civil work) details with respect to materials and construction techniques. Hardscape study conducted through visits to designed landscapes. Study of Softscape (plant material), their characteristics and contribution in terms of creating and imparting character to outdoor spaces. This study should be conducted through site/ nursery visit with emphasis on native and naturalized species.

Module – V:

Design Studio: Designing in a different socio geographic context (other than where the institute is located). To understand the elements and principles of landscape design and role of landscape elements in design of outdoor environments on the site. Creating awareness about using Landscape design as a tool to address environmental concerns in Architecture. To develop understanding of site analysis and site planning and integrated design of open and built spaces. Application of site planning principles in integrated design of open and built spaces

COURSE ASSESSMENT DETAILS:

- Assignments shall be individually or comprehensively covering unit 1 & 2 and will be conducted in 4 weeks.
- Application of all Unit 3 & 4 will be demonstrated in design project of the semester as well as in unit 5. The study and analytical exercises will be carried out in 4 weeks
- Unit 5 : 8 weeks (including regional study and site visit/s)

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sr. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
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1. Barlow, R.E., “Landscape Design: A Cultural and Architectural History”, Harry N. Abrams. 2001
2. Hunt, J.D., “Greater Perfections: The Practice of Garden Theory”, Thames & Hudson. 2000
3. Kaplan, R., Kaplan, S. and Ryan, R., “With People in Mind: Design and Management of Everyday Nature”, Island Press. 1998
4. Reid, G.W., “Landscape Graphics”, Watson-Guption. 2002
5. Ruggles, D.F, “Islamic Gardens and Landscapes”, Univ. of Pennsylvania Press. 2008
6. Simonds, J.O, “Landscape Architecture, A Manual of Land Planning and Design”, McGraw Hill. 2006

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Course: Urban Design

COURSE TEACHING SCHEME:

Course Code – MAR20123							First Year Semester - II	
Course Type: Professional Ability Enhancement Compulsory Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	4	50	50	100	Nil	Nil	200	4

COURSE OBJECTIVE:

- a) To help students to have the basic understanding of Urban design themes and Morphology. Also, to facilitate the Dimension, themes and concept adopted in Past.
- b) To carry out the evaluation and conceptualization of Urban issues and study of potential design strategies.

COURSE OUTCOME:

Understanding the Urban design analysing techniques, Morphology, Typology, Visual and Perceptual aspects, Continuity and change in concept.

COURSE CONTENT:

Module – I:

Relationship of urban design to architecture, planning and landscape;
Evolution of professional discipline.

Review of urban forms, patterns and spaces in different periods of history viz. ancient river valley civilization, Greek, Roman, Medieval, Renaissance, Baroque, post industrial revolution period in Europe and India and their influencing factors.

Module – II:

Elements of urban environment-urban form, townscape, urban spaces, streetscapes, building forms and facades, public art. Concepts of urban design, public perception, Image of City and townscape. Responsive Environments.

Module – III:



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Emerging concepts in urban design, modern examples of urban settlements, town centers and urban spaces in India and foreign countries.

Module – IV:

Urban design principles, tools, techniques and paradigms; Role and types of urban design guidance in modern context

COURSE ASSESSMENT DETAILS:

- Field studies- observational and analytical studies of important urban/ public spaces, roads; Imageability and townscape of selected areas/ settlements.
- Design evaluation/ analytical study of modern examples.
- Study of Urban design proposal for improvement/ renewal/ redevelopment/ new development of an area.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Broadbent, G., “Emerging Concepts of Urban Space Design”, Van Nostrand Reinhold. 1990
- Cowan, R., “Urban Design Guidance by UD Group”, Thomas Telford Publishing. 2002
- Punter, J. and Carnoma, M., “The Design Dimension of Planning-Theory, Content and Best Practices for Design Policies”, E&FN Spon. 1997
- Spreiregen, P. D., “Urban Design; Architecture of Towns & Cities”, McGraw Hill. 1965
- Watson D. et. al (ed), “Time Saver Standard for Urban Design”, McGraw Hill. 2003
- Responsive Environments by Bently
- Image of City by Kevin Lynch

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Course: Research Methodology

COURSE TEACHING SCHEME:

Course Code – MAR20124							First Year Semester - II	
Course Type: Skill Enhancement Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	2	50	50	100	Nil	Nil	200	3

COURSE OBJECTIVE:

- To imbibe the importance of research in architecture and enable the students to undertake methodical research in an area of their interest.

COURSE OUTCOME:

- The student will develop the skill to identify and decipher issues relating to Architecture based on research methods and its application.
- Students undertake methodical research and report in form of a research paper

COURSE CONTENT:

Module I: Fundamentals of research

- Introduction to the types and methods of research their relative advantages and disadvantages, the process of formulating a research.
- Components of Research Process and Methodology: problem statement, literature review, critical thinking (analysis and inferences), types of hypothesis, types of sample, methods of data collection, data analysis, research proposal preparation. Types of variables and their measures.
- Ethics in research and publication ethics.
- Introduction to technical writing and presenting a research paper.

Module II: Research in Architecture



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- Introduction of Research & its importance in Architecture. Need based Research Areas, its Identification. Defining Scope and Limitations.
- Qualitative, Quantitative and Mixed methods approach in architectural research.
- Research proposal preparation, research outcome.

Module III: Research data sampling and analysis methods

- Introduction to the concept of Normal distribution.
- Sampling Techniques: Probability and Nonprobability sampling, sampling errors.
- Use of statistics in research. Central tendencies, introduction to correlation, association and regression. Type 1 and type 2 errors in hypothesis testing.
- Student should be able to complete a research paper draft in the semester and it should be ready for the publication. Research topic can be Based upon any of the knowledge domains studied by the student in the curriculum.

COURSE ASSESSMENT DETAILS:

Continuous assessment needs to be done through application-based assignments related to modules. One research paper should be ready by the end of semester along with its plagiarism report.

End semester term work should include assignments like study review, formulation of research topic and research paper.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Dwivedi, RS (2001) Research Methods in behavioural science, Mcmillan, New Delhi.
- Graziano, A (1989) Research methods process of inquiry, Harper Collins Publishing, New York.
- Groat, L & Wang, D (2002) Architectural research methods, John Wiley publication, New York.
- Harrigan, JE (1987) Human factors research methods, Elsevier, Amsterdam.
- Kothari, CR (1990) Research Methodology: methods & techniques, Wishwa Prakashan, New Delhi.



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- Sanhoff, H (1991) Visual research methods in design, Van Nostrand Reinhold, New York.
- Zeisel, J (1995) Inquiry by Design: tools for environment-behaviour research, Cambridge University Press.
- Creswell, JW (2002) Research design: qualitative, quantitative, & mixed methods approach. Thousand Oaks, Sage.
- Denscombe, M (2003) The good research guide: for small-scale research projects. Oxford University Press, London.
- George, A & Bennett, A (2005) Case studies and theory development in the social sciences. Cambridge MA: MIT Press.

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Course: Project Management

COURSE TEACHING SCHEME:

Course Code – MAR20122							First Year Semester - II	
Course Type: Skill Enhancement Course								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	2	50	50	100	Nil	Nil	200	3

COURSE OBJECTIVE:

- a) To help students to understand the concept of Project Management and feasibility analysis
- b) The course objective also aims to comprehend the fundamentals of Administration, costing and Budgeting.
- c) Analyse, apply and appreciate the contemporary project management tools and methodologies

COURSE OUTCOME:

The Students will be able to understand the project management in the risk and effectively using different Management plans. Also, the project characteristics and various stages of a project

COURSE CONTENT:

Module – I

- Introduction to project management, probability theory and its application in construction planning and project management

Module – II

- Introduction to network techniques LOB, CPM, PERT application to mass housing;
- Scheduling and controlling of construction projects.

Module – III



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- Understanding the types of management: Personal management, Communication Management, Risk Management, Finance Management and Quality management: concept, definition, growth, role and function of manpower estimation for company and for projects;
- Personal administration at the project site.

Module – IV

- Material Management: Building construction industry- components of building industry, building material industry.
- Introduction to software's used in project management - like MS-Project, Primavera

COURSE ASSESSMENT DETAILS:

- Selection of the Live-Case study projects and working on project management and its probability.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Naik, B.M., "Project Management: Scheduling and Monitoring by PERT/CPM", South Asia Books. 1985
- Kerzner, H., "Project Management: A Systems Approach to Planning, Scheduling, and Controlling", 10th ed., John Wiley & Sons. 2005
- Lewis, J. P., "Fundamentals of Project Management", Amacom. 2007
- Wholey, J. S., Harry, P. H. and Newcomer, K.E., "Handbook of Practical Program Evaluation", John Wiley & Sons 2004
- Binnekamp, R., Gunsteren L. A. and Peter-Paul van Loon, "Open Design- A Stakeholder Oriented Approach in Architecture, Urban Planning and Project Management", Tufelft. 2006
- Berger, S. and Godel, J.B., "Estimating and Project Management for Small Construction Firms", Van Nostrand Reinhold Co. 1977

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Course: Elective – II – Re Architecture

COURSE TEACHING SCHEME:

Course Code - MAR20126A							First Year Semester - II	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To understand the current need for finding new systems of interventions on existing situations.

COURSE OUTCOME:

Students should be able for establishing logic for Interventions.

COURSE CONTENT:

Module – I:

The various type of interventions in existing situations; Re-Design, Re-Develop, Re-structure, Re- vitalize, Removal, Restoration, Regeneration, Rehabilitate, Reorganize, Renewal, Relocate.

Module – II:

Need for Interventions. The factors affecting the decisions for specific interventions–social, cultural, economic, structural, spatial. The Stake holders and their participation in the process.

Module – III:

Methodologies and system for intervention. Challenges in implementation of interventions. Future trends and speculations. Impact of Re-Architecture on the Precinct.

Module – IV:

Project work: design proposal for approved structure/ urban space.

COURSE ASSESSMENT DETAILS:

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As per exercises designed by the teacher Case studies analyzing above concepts and design proposal.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sr. No.	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1	Creative Re-use of Buildings, Donhead by Latham, Derek.	2007
2.	New trends in Renovating by Carles Broto	2004
3.	Achieve Hospitality Architecture That Impresses – Part 3: Give New Life to an Old Building with Adaptive ReuseBy April Maifield	
4.	Design Principles of Adaptive Reuse: Case Studies on Dockyard	
5.	A new future for the past: a model for adaptive reuse decision-making". Built Environment Project and Asset Management.Bullen, Peter; Peter, By ISSN 2044-124X	8 July 2011

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Course: Elective – II – GIS & Terrain mapping

COURSE TEACHING SCHEME:

Course Code - MAR20126A						First Year Semester - II		
Course Type - Open Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To understand Survey of modelling tools for getting information at neighbourhood or city level.

COURSE OUTCOME:

The course will make student understand and represent the Geological, environmental urban level data using GIS or terrain mapping as a tool.

COURSE CONTENT:

MODULE I:

INTRODUCTION TO DIFFERENT TERRAIN MAPPING TECHNIQUES

Introduction to Geographic Information System and many other terrain mapping techniques.

- GIS Techniques & technology. Basic concepts in GIS and CAD/GIS data interchange techniques, creating a contoured base-map, developing a surface model, developing a slope map, aspect map.
- Relating information from different sources, map projections, CAD drawings,

MODULE II: APPLICATION AND USE OF GIS

- Site selection, Geo processing, Generating queries,
- Data representation: Raster – Vector. Data capture. Spatial analysis, Data modelling, map overlay, geological information, terrain analysis.
- Case Studies – Urban Planning, Network Analysis etc.

COURSE ASSESSMENT DETAILS:



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- Continuous assessment needs to be done through application-based assignments related to modules.
- End term External sessional assessment based on the assignments done base on the above modules.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Berry, J. K. (1993). Beyond Mapping: Concepts, Algorithms and Issues in GIS. Fort Collins, CO: GIS World Books.
- Bolstad, P. (2005). GIS Fundamentals: A first text on Geographic Information Systems, Second Edition. White Bear Lake, MN: Eider Press, 543 pp.
- Burrough, P. A. and McDonnell, R. A. (1998). Principles of geographical information systems. Oxford University Press, Oxford, 327 pp.
- Chang, K. (2007). Introduction to Geographic Information System, 4th Edition. McGraw Hill, ISBN 978-0071267588
- Elangovan, K. (2006). "GIS: Fundamentals, Applications and Implementations", New India Publishing Agency, New Delhi" 208 pp.
- Fu, P., and J. Sun (2010). Web GIS: Principles and Applications. ESRI Press. Redlands, CA. ISBN 1-58948-245-X.
- Harvey, Francis (2008). A Primer of GIS, Fundamental geographic and cartographic concepts. The Guilford Press, 31 pp.
- Heywood, I., Cornelius, S., and Carver, S. (2006). An Introduction to Geographical Information Systems. Prentice Hall. 3rd edition.
- Longley, P.A., Goodchild, M.F., Maguire, D.J. and Rhind, D.W. (2005). Geographic Information Systems and Science. Chichester: Wiley. 2nd edition.
- Maguire, D.J., Goodchild M.F., Rhind D.W. (1997). "Geographic Information Systems: principles, and applications" Longman Scientific and Technical, Harlow.
- Ott, T. and Swiaczny, F. (2001) .Time-integrative GIS. Management and analysis of spatio-temporal data, Berlin / Heidelberg / New York: Springer.
- Sajeevan G. (March 2008). "Latitude and longitude – A misunderstanding" (PDF). Current Science. **94** (5): 568.
- Sajeevan G (2006). "Customise and empower". Geospatial Today. **4** (7): 40–43.
- Thurston, J., Poiker, T.K. and J. Patrick Moore. (2003). Integrated Geospatial Technologies: A Guide to GPS, GIS, and Data Logging. Hoboken, New Jersey: Wiley.
- Roger F. Tomlinson (2007). Thinking about GIS: Geographic Information System Planning for Managers. ESRI, Inc. ISBN 978-1-58948-158-9.

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Course: Elective – II – Architectural Criticism

COURSE TEACHING SCHEME:

Course Code - MAR20126C							First Year Semester - II	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To be able to assess to the extent to which various variables such as value systems, function, costs, technological performance, visual context, environmental sustainability etc. are manifested in the architecture, take a stand and develop an argument and report in form of architectural critique.

COURSE OUTCOME:

Gaining the art, Skill and Techniques of critical appreciation and communication of aesthetics.

Gaining the techniques of critical writings in the Field of Architecture in a Journalistic manner.

COURSE CONTENT:

Module – I: Evaluating architecture – The expert paradigm, the user’s evaluation, post occupancy evaluation, qualitative and quantitative evaluation with respect to various aspects such as building performance, cost, function, visual analysis, sustainability etc. Competitions, criteria for awards in Architecture, Jury reports.

Module – II: Tools for evaluation. Survey, experiment, observation, etc.

Module – III: Reporting the critique. Types of writing. Journals, popular media, reporting in local languages. Graphical as well as non graphical tools for communication. Taking a stand and logically putting up a discourse. Technical writing.

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COURSE ASSESSMENT DETAILS:

Case studies of Architectural discourses and reporting. A student should take up at least one architectural appraisal / competition jury reports / award jury report for understanding the presentation of appraisal. Taking up a building or campus or similar and undertake critical evaluation of the same and reporting the evaluation in technical form.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

1	Pritzker / Aga Khan awards jury reports.	
2	Towards A Symbolic Architecture by Charles Jencks	1985
3	Meaning in Architecture by Charles Jencks	1970
4	Adhocism – The Case for Improvisation by Charles Jencks (The MIT Press)	2013
5	Complexity and Contradiction in Architecture by Robert Venturi	1905
6	Architecture as Signs and Systems – For a Mannerist Time by Robert Venturi	2004
7	The Death and Life of Great American Cities by Jane Jacobs	1961
8	Cities and the Wealth of Nations: Principles of Economic Life by Jane Jacobs	
9	The Loneliness of a Long–Distant Future – Dilemmas of Contemporary Architecture by Romi Khosla	2020
10	The Idea of Delhi by Romi Khosla	2005
11	Paths Uncharted: Balkrishna Doshi	2019
	Kamala House by BV Doshi	2019
12	Elements of Spacemaking by <u>Yatin Pandya</u>	2014
13	Concepts of Space in Traditional Indian Architecture by <u>Yatin Pandya</u>	2013
14	Architecture: Presence, Language, Place (Skira Library of Architecture) by Christian Norberg-Schulz Skira	2000
15	Genius Loci Hardcover by <u>Christian Norberg-Schulz</u>	Rizzoli;1991
16	Intentions in Architecture by <u>Christian Norberg-Schulz</u>	Allen & Unwin 1963
17	Existence Space and Architecture (New Concepts of Architecture S.) by Christian Norberg-Schulz	Littlehampton Book Services Ltd 1971

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Course: Elective – II – Urban land economics and valuation

COURSE TEACHING SCHEME:

Course Code - MAR20126D							First Year Semester - II	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To understand basic concepts of Urban land, development, economics and management.

To familiarize students to the real-estate market mechanisms and their implications on the process of Urban development and resource mobilization.

COURSE OUTCOME:

Students will get the knowledge of financial issues in the process of Urban Development.

Knowledge about Co-relation of Urban Development and Land Economics.

COURSE CONTENT:

Module – I: Urban Land Economics.

Economic concepts of land, objectives and scope of land economics.

Relevance for spatial planning; economic principles of land uses; economic rent, land use and land values, market mechanism and land use pattern.

Module – II: Developments of Land and Land & Property Valuations

Process, cost of development, source of finance, and financial calculation for real estate development. Valuation of land and property.

Discounted Cash Flow Method, Development Method etc.

Module – III: Developments of Land and Land & Property Valuations

Process, cost of development, source of finance, and financial calculation for real estate development. Valuation of land and property.

Discounted Cash Flow Method, Development Method etc.

Module – IV: Factors Influencing locational decisions



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Analysis of location of specific uses like residential, industrial, commercial and institutional in the light of location theories in intra-regional and inter-regional context; techniques of cost benefit analysis of urban development programme.

Module – V: Case studies of real estate development in public, private, partnership sectors; real estate as facilitator of development.

Development of real estate as a tool for controlling land and property prices; transaction and renting of real estate, lease deeds/ sale deeds, sale documents, registration; mortgage and pledging.

Module – VI: The role of government as a developer, financier and policy maker to be critically assessed in the era of privatization in the housing sector.

Housing Finance- Role of NHB and other financial Institutions.

Mechanisms for housing loans for various income groups & industry.

Role of private sector in housing infrastructure development.

Module – VII: Real estate laws, rent control laws, and another legal framework.

Investment and risk assessment techniques market surveys and research, rating system in real-estate market etc.

COURSE ASSESSMENT DETAILS:

Seminars, presentations of the Case studies and journal.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- | | | |
|-----|--|------|
| 01 | Card R, Mardoch J, Mardock S, “Real Estate Management Law”, OUP
Oxford | 2001 |
| 02 | “Sustainable Land Management: Challenges, Opportunities, and Trade-offs”,
World Bank Publications | 2006 |
| 03 | CREDAI, resources on all relevant court judgements | |
| 04 | Shivramkrishnan K C, “Revisioning Indian Cities”,SAGE | 2011 |
| 05 | Banerjee D. N, “Principles and Practice in valuation”, Eastern Law House | 1998 |
| 06. | Real Estate Market Analysis: A Case Study Approach by Adrienne Schmitz. | |
| 07 | Financial Management –Theory and Practice By Prasanna Chandra Tata
McGraw Hill | |



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Master of Architecture (General)
Course Detailing
Second Year - Semester III
(With effect from Academic Year 2020-2021)

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Course: Integrated Design studio

COURSE TEACHING SCHEME:

Course Code - MAR20231							First Year Semester - III	
Course Type - Professional Core Courses								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	6	125	125	Nil	Nil	250	500	10

COURSE OBJECTIVE:

To learn, explore, provide, and implement sustainable design principles effectively on a project while staying within budgetary and scheduling constraints.

To develop skills required to take forward multi-disciplinary and collaborative team whose members, experts contributes in decisions making based on a shared vision and a holistic understanding of the project during the entire project life, from pre-design to occupancy and into operation.

COURSE OUTCOME:

Gaining, understanding to implement Integrated Approach to design a project.

Gaining skills, knowledge and techniques of other streams in an integrated way to design a building and its environment.

Students will learn an ability to Integrate functional infrastructure needs / requirements of the project to suit the local context to achieve high performance (sustainable) buildings while avoiding or minimizing incremental costs.

Gaining skills, knowledge and experience related to the use of variety of analytical approaches of other systems than design for optimal building environment and so as to develop a feasible base, approach for Dissertation / Thesis.

Impart an ability to deal with design reflecting detailed research-oriented approach.



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Gaining collaborative learning process and teamwork skill through the entire design process.

COURSE CONTENT:

Introduction to need of the Integrated approach.

Guidelines to integrate design with other technical streams like civil engineering, electrical engineering, mechanical engineering, environmental science, botany etc. as a part of design solution, estimating the feasibility of the required components.

Integration and application of various parameters of Sustainability.

Project Management starting from the pre design stage to implementation of the project along with the experts in various related fields.

Necessity and Importance of the documentation.

COURSE ASSESSMENT DETAILS:

Projects which have multi-functional uses with complexity of infrastructure in its urban and social context are to be taken. Number of assignments can be taken to present the findings through presentations, using learnt techniques or any other way for the analysis.

Students may be grouped with other streams for preparation of:

- Site analysis
- Working out services
- Working out renewable energy outputs etc.
- Any other required analysis related with the building and its environment.

Students may be grouped in (max three) for working out the project Architecturally at the completion. The Design exercise should reflect the inputs from other subjects. The Design solution needs to be derived out of research / case studies and its synthesis.

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Course: Urban Planning

COURSE TEACHING SCHEME:

Course Code - MAR20232							First Year Semester - III	
Course Type - Professional Ability Enhancement Compulsory Courses								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	4	50	50	100	Nil	Nil	200	4

COURSE OBJECTIVE:

- To impart knowledge related to planning of urban settlements. Considering the scale, typology hierarchy and the complexity pertaining to growth and development of Indian cities.
- To impart knowledge related to urbanization, city region linkages, planning history, theory, techniques of planning, concepts and approaches, processes, planning and development policies, planning legislation, types of plans, implementation etc.

COURSE OUTCOME:

- Understand the dichotomy between the urban and natural environment and resources
- Understand the significance of city-region linkages and inter-dependence.
- Be familiar with approaches to human settlement planning, urban planning at various levels and agencies responsible for the same, acts and legal tools relevant to Urban planning

COURSE CONTENT:

Module – I – Introduction

- Definition and characteristics of Urban areas / Evolution of Settlements
- History of Town Planning
- Process of Urbanization
- Hierarchy of the settlements
- City in context of the Region.

Module – II – Planning Principles and Legislation

- Planning theories and Techniques



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- Hierarchy of Plans
- Acts and Legal tools relevant to Urban Development
- MRTTP Act 1966, MHADA Act. 1976
- Land Acquisition Act., ULC Act, Slum Development Act., Etc.

Module – III – Implementation of the Urban Development Plans.

- Importance of the Public Participation in Planning.
- Role and contribution of the different authorities related with Urban Planning and Development.
- Importance of public participation in Urban planning

Module – IV- Management of Urban Development

- Management of Urban Development in the Context of India and Abroad.

COURSE ASSESSMENT DETAILS:

- Detailed study and Analysis of Any Development Plan of the City.
- Seminar / Discussions on the various issues of Urban Development.
- Case Study of the any part of the city / urban agglomeration

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Urban and Regional Development Plans Formulation and Implementation” (URDPFI) Guidelines
- Creighton. James L., “The Public Participation Handbook: Making Better Decisions Through Citizen Involvement”, Wiley publishers – 2005
- Lynch, K., “Good City Form”, MIT Press. 1995
- Taylor, N., “Urban Planning Theory since 1945”, London Sage 2006
- Campbell S., and Faiustein, S.S., “Readings in Planning Theory”, Blackwell Publishing. 2003
- Jan Gehl, “Cities for People”, Island press. 2010

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Course: Architectural Conservation

COURSE TEACHING SCHEME:

Course Code - MAR20233							First Year Semester - III	
Course Type - Professional Ability Enhancement Compulsory Courses								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	4	50	50	100	Nil	Nil	200	4

COURSE OBJECTIVE:

To understand the need of conservation.

To introduce basic concepts in heritage and conservation.

To introduce, stimulate and encourage methodologies of intellectual enquiry and analysis into the field of Architectural conservation.

To familiarize the students with conservation practices and processes on site and to increase awareness regarding conservation of heritage sites.

To imbibe the significance of community outreach and the importance of academic knowledge exchange with civil society and communities with a holistic participatory approach towards conservation of cultural heritage.

COURSE OUTCOME:

Gaining an overall view of the field of conservation of built heritage.

The students will be equip to address the complexities, challenges of historic buildings, heritage cities.

The student will develop the skill to identify, decipher issues relating to Architectural Conservation of tangible and intangible Heritage.

COURSE CONTENT:

Module – I: Ethics & Philosophy of Conservation

Defining Heritage: tangible and intangible heritage, brief history, scope, purpose of Architectural Conservation, cultural value and cultural capital, socio-cultural-economic and environmental significance of conservation, principles: culture as a shared resource, basic concepts of heritage and conservation, attitudes and approaches of Conservation. Traditional vocabularies of Architecture Conservation, definitions and terminologies of conservation, preservation, restoration, rehabilitation, up-gradation, retrofitting, revitalization, regeneration,

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redevelopment , renewal , renovation adaptive re-use, reproduction, reconstruction etc interventions of heritage sites. Historic cities and their associated region. A brief study about urban conservation and renewal strategies, Conservation of Cultural Heritage.

Module – II: Listing of heritage structure & Heritage Precincts

Listing as an important heritage management tool, various criteria for listing buildings & documentation techniques. Statutes of listed buildings – spot listing & delisting, inter disciplinary approaches to building recording. Conservation & management – character & issues of heritage towns, delineating zones, planning for heritage precincts and areas. Preparatory procedure for conservation, inventories, inspection, prevention of existing state, consolidation of the fabric.

Module – III: Conservation Techniques

Importance of documentation: archival, Architectural and structural, structural issues in historic buildings, Techniques used in preparation of Conservation plans: site visit, inventories, typology, analysis, socio-economic surveys. Material :stone, brick, lime, metal, wood and RCC. Why and when to use lime?, material compatibility and their use accordingly, causes of decay in buildings by natural and human factors, disasters, botanical ,biological and Microbiological causes, reasoning and responsible factors for deteriorating conditions, minimal intervention, sustainability, authenticity, integrity. Introduction to Conservation procedure: Architectural survey, survey methodology: physical measure drawings, photographic survey, digital Architectural photogrammetry, 2 D & 3D digital drawings, etc. An introduction to the economic aspects of conservation, cultural value incentives for conservation like transferable development rights and the institution of National Cultural fund, overview of incentive schemes adopted in other countries, social sustainability.

Module – IV: Legislation, Policy and Organizations

Why legislation is necessary? What is protected monument? Introduction to the cultural heritage legislations and protection management in India and agencies: their role and responsibilities (ASI, Heritage Societies, State and Local authorities: corporations, MMRDA and Urban Arts commission, NGOs like INTACH, national monument act), funding agencies. Legislations in international scenario: UNESCO, World Heritage Center and concerned advisory bodies: their role and responsibilities. Brief introduction to various acts, conventions, charters, guidelines. Heritage tourism and conservation, inner city regeneration, infill development etc. in programmes like JNNURM , SMART CITY MISSION , AMRUT, IDIPT etc Study and discussion on recent conservation practices adopted by different agencies.

COURSE ASSESSMENT DETAILS:

Case studies live and literature in groups or individual, analyzing above concepts.

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Exercises can be designed by concerned teacher .

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

Sr. No	Name of Authors/ Books/ Publishers	Year of Publication/ Reprint
1	Charles Mynors (1995) Listed Buildings and Conservation Areas FT Law &Tax, London	(1995)
2	R.D.Pickard (1996) Conservation in the built environment , Longman, Harlow James Stevens Curl, Encyclopaedia of architectural terms, Donhead Publishing , 1993 Stewart	(1996)
3	Stewart Brand, how buildings learn: What happens after they are built, London, Viking, 1994.	1994
4	Heritage Management Plan (HMP) INTACH publication	
5	Why Lime mortars: INTACH publication	
6	National conservation Policy 2014	
7	Venice Charter	
8	Nara Document	
9	Architectural Conservation: Principles and Practice, Wiley Blackwell by Orbasli . A .	2007
10	International Heritage and Historic Building Conservation: Saving the World's Past, Routledge by Aygen . Z.	2012
11	Managing our Cultural Heritage Aryan Books International, New Delhi by Greffe Xavier	2001
12	The Future of Asia's Past-Preservation of the Architectural Heritage of Asia; Published by The Getty Conservation Institute.	1995
13	International Charters for Conservation and Restoration by ICOMOS	
14	Conservation of Historic Buildings, Architectural Press by M. Feilden, Bernard 3rd Edition,.	2003
15	Urban Planning Conservation and Preservation, McGraw Hill by Cohen, Nahoum.	2001
16	Historic Towns and Heritage Zones, INTACH by Menon, A.G.K. & Thapar, B.K.	2002

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Course: Building materials & technologies

COURSE TEACHING SCHEME:

Course Code - MAR20234							First Year Semester - III	
Course Type - Professional Ability Enhancement Compulsory Courses								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	2	25	25	100	Nil	Nil	150	3

COURSE OBJECTIVE:

To upgrade students with low cost building materials emphasizing on local building materials .

To upgrade students with advance building materials.

To impart knowledge on advancements in different disciplines related to building technology.

COURSE OUTCOME:

Student should be able :

- to design low cost buildings.
- to be able to implement innovative and advance technology in projects.

COURSE CONTENT:

Module – I:

Factors governing cost of building.

Introduction to the concept of low cost buildings, various components to be consider contributing in reduction of cost of building.

Low cost material, application and construction techniques.

Research and development by various organizations in the country and foreign countries to reduce the cost.

Module – II:

Modular coordination in building design, prefabrication- total and partial.

Technologies that require fewer resources are easy to maintain and have less of an impact on the environment compared to techniques from main stream technology.



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Traditional, ancient techniques used all over the world. CBRI techniques, ferro concrete, modular, prefabrication, curtain wall etc.

Recycled materials, regional materials, low VOC materials, etc.

Environmental impact of building materials, Eco friendly building materials, their composition and recycling, physical properties, heat resistance, sound resistance, Embodied energy of materials and recycled materials etc.

Life cycle assessment of materials.

Traditional Architecture- vernacular vocabulary.

Module – III:

Introduction to Building Technologies- material, design structure, management, maintenance.

Advancements in materials and building technology effective for mass housing, rapid construction methods and materials.

Hi-tech Structural systems for architectural expression.

New forms: Shells, cable, frame, prismatic and geodesic structures, load carrying mechanism, large span structure

Detail study of various building skin and its application for different building type.

Building management system(BMS)

Retrofitting: Energy retrofit, functional, structural and seismic, Case studies.

COURSE ASSESSMENT DETAILS:

Submission of detail drawings through manual or digital means showing above mentioned building technologies and systems, covering all topics. Seminar presentation on low cost and latest advancement in construction technologies and its various aspects. Journals on materials, surveys for their practical use.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

S. No.	Name of Authors/ Books/ Publishers	Publication
1.	Clements, C. D.J, “Intelligent Buildings – Design, Management & Operation”, Thomas Telford.	2004
2.	Haulden, G., Saldanha, M. and Liedt P., “Climate Skin : Building Skin Concepts that can do more with less energy”, Birkhauser.	2008
3.	Alarcen, L., “Lean Construction”, Balkema	1997
4.	Salvadori, M. and Heller R., “ Structure in Architecture”, Engle Wood.	1986



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5. Bansal, N.K., “Practical Handbook on Energy Conservation in Buildings”, Indian Building Congress, Nabhi Publication. 2008
6. Davis, S., “Architecture of Affordable Housing”, University of California Press. 1995
7. Ruiz, F.P., “Building an Affordable House”, Taunton Press. 2005
8. Nunan, J., “The Complete Guide to Alternative Home Building Materials and Methods”, Atlantic Publishing. 1980
9. Lal, A.K., “A Handbook of Low Cost Housing”, New Age International. 1995
10. Mathur, G.C., “Low Cost Housing in Developing Countries”, South Asia Book. 1999
11. Sowman, M. and Urquhart, P., “A Place called Home: Environmental Issues and Low-Cost Housing”, Juta Academic. 1998
12. Wang, S., “Intelligent Buildings and Building Automation”, Spon Press. 2009

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Course: Dissertation - I

COURSE TEACHING SCHEME:

Course Code - MAR20235							First Year Semester - III	
Course Type - Skill Enhancement Courses								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
2	2	25	25	Nil	100	Nil	150	3

COURSE OBJECTIVE:

The course objective is to impart capability of organizing and analytically evaluating information into topics of possible research in built environment with appropriate developed literature searches. The topic of research has to be applied in research so that the application of findings can be demonstrated in the Dissertation II.

COURSE OUTCOME:

- To develop ability of reviewing literature and Reporting literature using standard methods of reporting, citations, paraphrasing.
- To develop methodological framework of dissertation.

COURSE CONTENT:

Module – I

- Identification of an appropriate and focused dissertation topic reflecting sustainable, environmental technological needs of the day
- Formulate proposal including objectives, scope and limitations of work, methodology of work, case studies to be undertaken.
- An in-depth investigation of the topic using an analysis of existing literature, case studies and other sources. To develop understanding of the dissertation topic.



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COURSE ASSESSMENT DETAILS:

- Continuous assessment needs to be done through the intermediate assessment of literature reviews and synopsis in the form of presentation and Juries wherever required.
- End semester external term work assessment should be done.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- McMillan, K & Weyers, J (2007) How to write dissertations and project reports. Pearson Prentice Hall.
- Watson, G (1987) Writing a thesis: a guide to long essays and dissertations, London: Longman. Specialist bibliography according to the project.
- Turabian, K (2007) A manual for writers of research papers, theses, and dissertations, 7th Edition, Chicago: University of Chicago Press.
- As appropriate for each individual thesis.

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Course: Elective – III - Post Occupancy Evaluation

COURSE TEACHING SCHEME:

Course Code - MAR20236A							First Year Semester - III	
Course Type - Open Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To develop understanding of 'Post Occupancy Evaluation' as a critical tool of building performance assessment & create the base for conducting POE of small-scale built spaces.

COURSE OUTCOME:

Students are expected to conduct POE of different building types & present their review on the same.

COURSE CONTENT:

This elective shall introduce the concept of POE by going into the roots of it. It shall focus upon the process of conducting a POE as well as the different approaches to conduct it.

Module I: Evolution Of P.O.E

- Importance of performance assessment; Importance of POE from green building point and health and wellbeing of people point of view. Definition of POE; Benefits of conducting POE; hurdles to conducting POE
- Purposes on conducting POEs
- Types of POEs [Indicative, Investigative, diagnostic]

Module II: P.O.E- Process

- Phases/ steps involved in the process of conducting POE



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- Types of Post Occupancy evaluations; Management of data / information required for POE
- POE in the Indian context

COURSE ASSESSMENT DETAILS:

- Conducting POE of a small built space

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Robert B. Bechtel and Arza Churchman “Handbook of Environmental Psychology”, John Wiley & Sons Inc., New York 2002.
- Wolfgang Preiser & Edlaine Ostroff “Universal Design Handbook”, McGraw Hill, 2001.
- James Douglas “Building Adaptation”, Elsevier, Oxford 2002.
- Evans, R., Haryott, R., Haste, N. and Jones, A. (1998), The Long Term Costs of Owning and Using Buildings, Royal Academy of Engineering, London. Finch, E. (1999),
- “Empathetic design and post-occupancy evaluation”, Facilities, Vol. 17 No.11, pp.431-5. Friedman, A., Zimring, C. and Zube, C. (1978),
- Environmental Design Evaluation, Plenum, New York, NY.
- RIBA (1965), Handbook of Architectural Practice and Management, RIBA Publications, London.
- RIBA, R.S.G. (1991), “A research report for the architectural profession”, in Duffy, F.W. (Ed.),
- Architectural Knowledge: The Idea of a Profession, E. & F.N. Spon, London
- RIBA (1965), Handbook of Architectural Practice and Management, RIBA Publications, London.
- RIBA, R.S.G. (1991), “A research report for the architectural profession”, in Duffy, F.W. (Ed.), Architectural Knowledge: The Idea of a Profession, E. & F.N. Spon, London

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Course: Elective – III – Tall Building

COURSE TEACHING SCHEME:

Course Code - MAR20236B							First Year Semester - III	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

- The course “Tall Building” aims to provide the opportunity and exposure to theories and practical application of technology and science behind the Tall building designing and Planning.
- The course structure also aims to provide the students with different opportunities of learning through theories and trends of the tall building and Explore in the Studio.
- Learning through case-studies to understand the approach and adoption in their specialist area of study.
- Understanding the Design process of structural system, Transportation, HVAC, Fire Safety, and Environmental aspect, etc.

COURSE OUTCOME:

Students will identify and manage personal learning needs and interest. Also, the knowledge and understanding through independent approaches to the learning (case studies).

COURSE CONTENT:

Module – I: Tall Building concept and History

Introduction to Tall Building concept in India and Abroad.

Evolution of theories of Tall Buildings and its application in practice through case studies.

Module – II: Strategies, Principles and Design of tall Buildings



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Understanding the strategies and Principles of Tall Building

Process of carrying out the Architectural and Structural Design through case-studies of India

Module – III: Case-study

Understanding the following Design aspects through case-studies of Tall Building

- Environmental Performance
- Accessibility
- Vertical transportation and parking
- HVAC system
- Ownership, management and maintenance
- Fire safety
- Municipal codes
- Standardization Landscaping

COURSE ASSESSMENT DETAILS:

- Power-point Presentation of suggestive topic by Faculty taught during the theory lecture, Journals and case study.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Viswanath, H. R., Tolloczko J.J.A. and Clarke J.N., “Multi-purpose High Rise Towers and Tall Buildings”, Taylor & Francis. 1997
- Lin, C. F., “Construction Technology for Tall Buildings”, Singapore University Press. 2001
- International Building Code 2009, International Code Council. 2009

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Course: Elective – III – Sustainable Housing Policies

COURSE TEACHING SCHEME:

Course Code - MAR20236C							First Year Semester - III	
Course Type - Open Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To develop a holistic understanding of the parameters that determine the subjects of a housing policy, program & examine the current process that drives policymaking.

COURSE OUTCOME:

Students will understand the basics of housing policy, strategy, its formulation process, legal and economic dimensions and their implications in sustainable housing planning.

COURSE CONTENT:

“Housing is one of those basic social conditions that determine the quality of life and welfare of people and places. Where homes are located, how well designed and built, and how well they are weaved into the environmental, social, cultural and economic fabric of communities are factors that, in a very real way, influence the daily lives of people, their health, security and wellbeing. “

- United Nations Human Settlements Programme 2012

Taking this holistic approach to housing into consideration the elective shall consist of the following modules:

Module I- Establishing the Definition & Function of Housing

- Defining ‘housing’; current state of housing in Indian cities
- Brief history of economic & demographic context of housing in India



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- Understanding various aspects of 'housing shortage' in Indian cities.
- Understanding housing & congestion problems

Module II- Understanding Various Components of Housing

- Housing sector & its components [land, infrastructure, finance, labor, and building materials]
- Role of the housing sector [mechanisms & institutional framework for efficient housing delivery]
- Factors affecting housing markets [understanding demand & supply inter-relations]
- Understanding social & cultural aspects of housing
- Understanding economic aspects of housing [housing affordability]

Module III- Existing Policies & Programs for Housing

- Understanding and evaluation of Housing Policy and programs in India
- Review of existing policies in India such as National Housing policy; Rajiv Awas Yojana; National Housing & Habitat Policy; National Urban Housing & Habitat Policy; Pradhan Mantri Awas, Yojana etc
- To explore the policy aspects and finance mechanism in housing.
- Deriving a sustainable approach to housing policies and Strategies.

COURSE ASSESSMENT DETAILS:

- Critical writing w.r.t various housing sector components
- Comparative analysis of existing policies
- Case Study on Social Housing and Slum Improvement schemes, housing schemes by Government / private sector organizations.

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Course: Elective – III – Traffic and Transportation Planning

COURSE TEACHING SCHEME:

Course Code - MAR20236D							First Year Semester - III	
Course Type - Professional Elective								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	2	25	25	Nil	50	Nil	100	2

COURSE OBJECTIVE:

To impart knowledge related to policy, politics, planning, and engineering of transportation systems in urban areas of Indian cities.

COURSE OUTCOME:

Understand the Planning and design of a public transport system, solving its operational requirements and developing appropriate strategies and policies to manage the problems arising in improving the city quality life.

COURSE CONTENT:

Module – I– Introduction

- Definition and characteristics of Transportation planning
- Role of Transportation planning in making the cities lively
- Evaluation of Urban Structure Transportation systems infrastructure and management, transportation systems and their types, design and operating characteristics
- Various measures influencing Transportation and planning

Module – II – Transport, Traffic and Environment

- Defining and characterizing the role of highway revolt, public transit, auto era, policy analysis, air pollution, climate change, land use, transportation interactions, bicycles, pedestrians, traffic calming

Module – III–Transportation system and Management



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- Framework for evaluation of system option, plan preparation Regional Transport system: Importance of accessibility in regional transport planning. Role of road, rail, air and water transport systems. Regional transport systems, planning road network, planning for micro regions.

COURSE ASSESSMENT DETAILS:

Case Study Presentation of existing Transport System of any Urban Area with Critical Evaluation.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- Urban and Regional Development Plans Formulation and Implementation” (URDPFI) Guidelines
- Thomson, J. M., 1977, “Great cities and their traffic, London,” Victor Gollanez Ltd.
- Boquet, Y., 2010, “Changing Mobilities in Asian cities, Southeast Asian Geography Conference,” Vietnam. Online proceeding.
- <https://data.gov.in/catalog/road-transport-year-book2013-14-and-2014-15>, online access.
- Wilbur Smith Associates, 2008, “Study on Traffic and Transportation Policies and Strategies in Urban Areas in India,” Ministry of Urban Development.
- Varmora, K. K. C., and Gundaliya, P. J., 2013, “Effect of Traffic Composition and Road Width on Urban Traffic Stream,” Indian Journal of Research, 2(4)
- Ewing, R., Pendall, R., and Chen, D., 2003, “Measuring Sprawl and Its Transportation Impacts, Transportation Research Record
- Rao, A. M., and Rao, K. R., 2012, “Measuring Urban Traffic Congestion—A Review, International Journal of Traffic and Transport Engineering,



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Course Detailing
Second Year - Semester IV
(With effect from Academic Year 2020-2021)

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Course: Dissertation - II

COURSE TEACHING SCHEME:

Course Code - MAR20241							First Year Semester - IV	
Course Type - Professional Core Courses								
Teaching		Evaluation Scheme						
Theory	Studio	CA1	CA2	ESE Paper	ESE - STW	ESE-SV	Total	Credit
1	14	250	250	Nil	Nil	600	1100	22

COURSE OBJECTIVE:

This course expects application of research findings to solve identified problem in the built environment at planning or design level.

COURSE OUTCOME:

The proposal can be policy or architectural level but must be application relevant to Architecture and its related field.

COURSE CONTENT:

- Dissertation must address the issues or new ideas in the field of architecture and related areas of interest.
- Drawing informed and scientific conclusions from the research carried out in Dissertation I and applying the findings in at policy or design level addressing some problem of significance.
- The topic of dissertation can address the hi-tech Architecture, Public facilities, urban design, sustainable architecture, built environment, urban, rural development, building level solutions, building system design, landscape design, Detailing in design etc.



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COURSE ASSESSMENT DETAILS:

- Continuous assessment needs to be done on regular interval along with Department project assessment committee along with subject experts.
- Guide should mark 70 % of Continuous assessment, committee members should mark 30% of marking.
- End semester external viva assessment should be done by external subject expert.
- Format of report (black book) should be as per prescribed by the university, the proposal should be in the form of drawings or statistical data relevant to the study.

COURSE REFERENCE MATERIAL (RECOMMENDED READINGS):

- McMillan, K & Weyers, J (2007) How to write dissertations and project reports. Pearson Prentice Hall.
- Watson, G (1987) Writing a thesis: a guide to long essays and dissertations, London: Longman. Specialist bibliography according to the project.
- Turabian, K (2007) A manual for writers of research papers, theses, and dissertations, 7th Edition, Chicago: University of Chicago Press.
- As appropriate for each individual thesis.