

**FOURTH YEAR EIGHTH SEMESTER****1. Architectural Design VIII (210815)****Objectives –**

The course aims to obtain knowledge of fundamental concepts and theories of Housing and apply them in their design projects, various types of Housing and its components, the vocabulary of urban design, its components. And utilizing it in design.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot					L	T	P			
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation									
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/Assignment/Sessional		Lab work & Sessional	Skill based mini project								
1.	210815	Architectural Design VIII	DC- 18	-	-	-	-	100	100	50	250	8	-	-	8*(1.5)	12	Offline**	-

**PROJECT I: HOUSING**

The various types of housing projects in a typical urban scenario can be taken with suitable design parameters that get established after conducting a rigorous study. Analysis of existing design trends & user preferences need to be ascertained. Awareness about special building byelaws applicable for Group housing schemes is essential. In addition to design issues such as security, accessibility, identity, social interaction, comfort, economy etc. that would be investigated. The application of Fractals in design can also be explored. Ex. Housing for the poor /Slum dwellers, Multi-storied apartments for Govt. / corporate employees, Multi-storied condominiums for the rich etc.

**PROJECT II: URBAN DESIGN OR URBAN CONSERVATION**

Urban design projects could deal with redevelopment of problem areas such as riverfronts, beach fronts, market areas, bazaars or commercial & residential districts that have reached a dead end situation. It could also deal with emerging nodes of transportation with its surrounding areas, the design of city level open spaces such as parks, plazas etc. Alternatively, conservation strategies for heritage areas along with revitalization techniques can also be attempted. The projects thus undertaken as group work will have to ultimately contribute ideas for the improvement of the quality of the urban environment.

**COs & LOs for Architectural Design – VI (210815)**

**Overall Course Outcome:** The course aims to obtain knowledge of fundamental concepts and theories of Housing and apply them in their design projects, various types of Housing and its components, the vocabulary of urban design, its components. And utilizing it in design.

CO's	The course should enable the student to: <ul style="list-style-type: none"> <li>Familiarize with given topic of design by choosing appropriate case studies through visits and documentation.</li> <li>Understand the resources available at National and international level through books, literatures and websites.</li> <li>Develop design ideas and Incorporate them.</li> </ul>	LO1	Formulate an intellectual position, explored through architectural design, which reconciles the development of a critical brief with spatial and functional criteria.
		LO2	Conceptualize a brief for a design project, which, through engagement with a series of contexts, seeks to provide a critique of the built environment by proposing alternative spatial, formal, organizational or material solutions.
		LO3	Synthesize a design solution, which combines appropriate architectural expression, cultural response and the fulfillment of the functional requirements of a brief.
		LO4	Produce appropriate drawings, models and other media of an architectural design which explore, test and express its qualities of space, form, organization and response to physical and other contexts.
		LO5	Integrate appropriate technologies concerning structure, materiality and services into the design proposal.
		LO6	Effectively communicate the design or designs through an exhibition incorporating drawings, models, texts and other appropriate media.

**REFERENCES:**

1. Time saver standards for building types, DeChiara and Callender, McGraw hill company
2. Neufert Architect's data, Bousmaha Baiche& Nicholas Walliman, Blackwell science ltd
3. National Building Code - ISI
4. New Metric Handbook – Patricia Tutt and David Adler – The Architectural Press
5. Time saver standards for landscape architecture – Charles W.Harris – McGraw Hill

## 2. Urban Design (Code – 210816)

### Objective –

The course aims to prepare the students to develop a holistic view of the city as a basis for designing the city/city components in the third dimension.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)	
				Theory Slot			Practical Slot					L	T	P				
				End Term Evaluation		Continuous Evaluation	End Sem. Exam	Continuous Evaluation										
				End Sem.	Proficiency in subject/course	Mid Sem.		Quiz/Assignment/Sessional	Lab work & Sessional			Skill based mini project						
2.	210816	Urban Design	DC-19	50	10	20	20	20	30		150	4	1	1	2	3	Blended** (3/1)	PP

### UNIT- 1 INTRODUCTION

Emergence of urban design as a discipline, need for urban design, Elements of urban design(buildings, streets, public spaces, transports, other elements etc. Principles of urban design- creating form and spatial definition in articulation of urban design expression.

### UNIT- 2 STUDY AND ANALYSIS OF URBAN SPACES IN HISTORY AND MODERN CONCEPTS IN URBAN DESIGN

A brief study and analysis of urban spaces in history-in the west(Greek, Roman, Medieval and Renaissance towns)and the east(in India-Vedic towns, temple towns, medieval and Islamic towns). Modern concepts in urban design. Study of Urban design theories of Gordon Cullen and Kevin Lynch. Relevance of historic concepts of urban design in the present context-Critical analysis of Indian cities & understanding the urban design projects of Singapore, China & United States.

### UNIT- 3 BASIC PRINCIPLES & TECHNIQUES IN URBAN DESIGN

Components in urban design composition. Urban scale, mass and space, definition of urban fabric, visual surveys and their influence for urban design, various methods of conducting a visual survey. Definition and purpose of open spaces and their hierarchy in urban design-hierarchy of utility spaces for residential, commercial, recreational and industrial use. Special focus on streets-Expressive quality of built forms, spaces in public domain.

### UNIT- 4 RENEWAL, RE-DEVELOPMENT AND FORMULATING URBAN DESIGN

Definition and need for urban renewal and redevelopment, scope for urban renewal in India challenges and implementation methods of urban renewal for Indian historic towns and cities, impact of public participation. Analysis and formulation of urban design guidelines for new developments. National and international case studies for urban renewal.

### UNIT- 5 URBAN DESIGN SURVEY AND PRESENTATION

Conducting an urban design survey of Conservation of historic cities, open-spaces, development of market spaces, transit oriented developments, waterfront development in India. Analysis of data. Formulating urban design guidelines for area-practical problem solving, understanding various presentation techniques for urban design presentations.

### COs & LOs for Urban Design 210816)

**Overall Course Outcome:** The course aims to obtain knowledge of fundamental concepts and theories of Housing and apply them in their design projects, various types of Housing and its components, the vocabulary of urban design, its components. And utilizing it in design.

CO1	Understanding the importance of general morphology of urban space	LO1	Defining Urban design as a requirement for public domain
		LO2	Summarizing various elements of the subject
		LO3	Journaling about public realm
		LO4	Building form and spatial definition
CO2	Understanding of fundamental concepts and theories of urban design	LO1	Retrieving concepts of the west and the east
		LO2	Categorizing urban spaces in history
		LO3	Synthesise general theoretical models by historians
		LO4	Assessing Urban forms of the history and contemporary reform
		LO5	Creating presentation of projects from different countries

CO3	<b>Learning</b> urban design techniques , components and survey methodology	LO1	<b>Understanding</b> components of urban design composition
		LO2	<b>Examining</b> methods of visual survey for analysis
		LO3	<b>Demonstrating</b> hierarchy of open spaces in urban design context
		LO4	<b>Programming</b> on streets and other public spaces
CO4	<b>Developing</b> the strategies that can be used to overcome urban issues	LO1	<b>Defining</b> urban renewal and urban re-development
		LO2	<b>Finding</b> scope in Indian historic towns and cities
		LO3	<b>Analysing</b> present documents by governments for new infrastructure and development
		LO4	<b>Evaluating</b> urban design guidelines and add new perspectives as required
		LO5	<b>Presenting</b> case examples related to urban re-development nationally and internationally
CO5	<b>Produce a</b> design process and a design solution to an urban design problem	LO1	<b>Appraise</b> a site by learnt survey methods
		LO2	<b>Analyse</b> secondary and primary information
		LO3	<b>Research</b> relevant developing urban design interventions
		LO4	<b>Demonstrating</b> abilities in team work and time management

**REFERENCES:**

1. The Concise townscape- Gordon Cullen, The Architectural press
2. Image of the city - Kevin Lynch
3. Architecture of town and cities - Paul D. Speriregon, The MIT press
4. Urban design – Ornament and decoration , Cliff Moughtin, Bath Press
5. Urban design – street and square, Cliff Moughtin, Bath Press
6. Town and square - Paul Zucker
7. The urban pattern - Arthur B Gallion, CBS publishers
8. Architecture and the urban experience - Raymond J Curran. Van Nostrand Reinhold Company
9. Indian city in the arid West - Kulbasha Jain , Aadi Centre
10. Indian mega city and economic reforms - A.K. Jain, Management publishing Company

### 3. Professional Practice & Ethics (210817)

#### Objective –

The course aims to obtain understanding of the moral values that ought to guide the Engineering profession, and to resolve the moral issues in the profession, and to justify the moral judgment concerning the profession.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)		
				Theory Slot				Practical Slot				End Sem. Exam	Continuous Evaluation	L				T	P
				End Term Evaluation		Continuous Evaluation													
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/Assignment/Sessional	Lab work & Sessional	Skill based mini project										
3.	210817	Professional Practice & Ethics	PAEC-5	50	10	20	20	-	-	100	3	2	1	-	3	Blended** (2/1)	PP		

#### UNIT- 1 THE PROFESSIONAL ROLE OF AN ARCHITECT & SERVICES RENDERED

Architect's role in society, IIA code of conduct, salient features of architect's act 1972, the council of architecture – Architect's office and its management, elementary accountancy required for the same etc. Architectural services- conditions of agreement- scope of work, comprehensive architectural services and architectural competitions, conditions of engagement, remuneration, professional fees and charges as per IIA norms, - copyrights of drawings.

#### UNIT- 2 ARCHITECTURAL COMPETITIONS & LEGISLATIONS

Regulations governing the conduct of competitions, Types of competition (open & closed competitions), appointment & duties of Assessors, instructions to participants, award of premium. Role of development authorities & urban arts commissions, salient features of the DCR for CMA, important regulations in the MP Govt. Environmental acts & laws, special rules governing hill area development & coastal area management, Heritage act of India etc.

#### UNIT- 3 EASEMENTS& ARBITRATION

Easement Rights –Definition, characteristics of an easement, Natural Rights ,Various easement rights- Easement of support, Easement of light and air, Easement of right of way, Easement of eave projection, etc . Continuous and Discontinuous easements, extinction of easements, Modes of acquiring easement rights – Need for Arbitration, arbitration agreement, role of arbitrators, umpire etc, excepted matters, arbitral award.

#### UNIT- 4 TENDER & CONTRACT

Calling for Tenders, tender documents, open & closed tenders, various types such as item rate, lump sum, labour & demolition tenders, conditions of tender, submission, scrutiny, recommendations & award of contract. Conditions of contract, IIA form of contract, articles of agreement, certification of contractor's bills, defects liability. Earnest money deposit, security money deposit etc.

#### UNIT- 5 VALUATION& RENT

Valuation – purpose of valuation, types of valuation- book value – salvage value- scrap value depreciation- obsolescence- sinking fund- land valuation ,building valuation- mortgage and lease- Annuity- definition, Fixation of rent- out going- gross and net income – year's purchase- capital cost standard rent- market rent- economical rent.

#### COs & LOs for Professional Practice & Ethics (210817)

Overall Course Outcome: Students will be able to get down in the profession and practice ethically.

CO1	With the understanding of the professional role of an architect & services rendered, the students will be able to practice ethically.	LO1	<b>Learn</b> the Architects' role in the society.
		LO2	<b>Relate</b> IIA Code of Conduct & Architect's Act, 1972 with architectural practice.
		LO3	<b>Understand</b> the working of architecture firm, services, scope of work, conditions of agreement, professional fees, remuneration and other professional charges, etc.
		LO4	<b>Comprehend</b> copyrights of drawings and other issues related to it.

CO2	Studying the regulations related to architectural competitions and legislations related to building construction, the students will be able to tackle the issues effectively.	LO1	<b>Learn</b> the types of competitions and regulations governing it.
		LO2	<b>Interpret</b> role of development authorities, commissions and salient features of DCR for CMA
		LO3	<b>Appreciate</b> the rules and the acts applied for specific types of building construction by the state and central governments.
		LO4	<b>Understand</b> the various Acts such as Environment Act, special rules governing hill area development, coastal area management, Heritage act of India, etc.
CO3	With the understanding of easement and arbitration, the students will be able to work practically once they enter professional world.	LO1	<b>Learn</b> easement rights and the types of easement rights and easements.
		LO2	<b>Construe</b> the modes of acquiring easement rights.
		LO3	<b>Appreciate</b> the need of Arbitration and its role, agreements, umpire, excepted matters, awards, etc.
CO4	Studying the regulations tenders and contract, the students will be able to put tenders and frame contract effectively.	LO1	<b>Learn</b> the definition and types of tender in architecture and building construction.
		LO2	<b>Interpret</b> conditions of tender, submission and scrutiny.
		LO3	<b>Recognize</b> the rules and regulations related to contract, agreements and certification of contractors' bill.
		LO4	<b>Understand</b> the various types of money deposits.
CO5	Studying the valuation and rent system will help the students in their professional practice.	LO1	<b>Learn</b> the meaning, purpose and type of valuation in architecture and building construction.
		LO2	<b>Summarize</b> the mortgage, lease, annuity, etc.
		LO3	<b>Understand</b> the system of renting and types of rent.

#### REFERENCES:

1. Hand book on Professional Practice by I. I. A, Image systems, Mumbai,1998.
2. Estimating and Costing by Dutta
3. CMDA-Development control rules for CMA.
4. TN cinematograph manual, govt central press, Chennai,1998.
5. Environmental Acts of the Ministry of Environment & forests, GoI.

#### 4. Dissertation (210818)

##### Objective –

The course aims to obtain understanding of standards and conventions of doing dissertation. , to provide preliminary background information that puts the research in context and to clarify the focus of the study. The subject points out the value of research.

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/Online)	
				Theory Slot			Practical Slot					End Sem. Exam	L	T				P
				End Term Evaluation		Continuous Evaluation		Continuous Evaluation										
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/Assignment/Sessional	Lab work & Sessional	Skill based mini project									
4.	210818	Dissertation	PAEC-6	-	-	-	-	20	30		50	4	-	-	4	2	Blended*** (2/2)	-

##### PHASE-1

First phase of dissertation allows students to identify the broad area / field of Architecture of their interest in which they may intend to do the research. This is to be done by studying and reproducing the brief of technical papers in the form of report review.

##### PHASE-2

Second phase allows the students to do the study of sample example of research already done by choosing the specific aspect / area relevant to broader field they have selected in first phase. This exercise involves the writing of report / review of book / journal dedicated to that specific aspect or area. This review writing is aimed to understand the method of collecting data (survey methods), analysis of data (statistics and mathematical formulas), drawing inferences and conclusion as attempted by the author of the book.

##### PHASE-3

Third phase is the writing of detailed dissertation report. Students are expected to choose their own topic of research by referring the area / field already identified in other two phases.

NOTE: Sessionals will be submitted in the form of review reports and Dissertation report.

##### COs & LOs for Dissertation – VI (210818)

**Overall Course Outcome:** The course aims to obtain knowledge of fundamental concepts and theories and to develop research ideas and Incorporate them in writing, with understanding of research and professional and academic reports.

CO 1, 2, 3	The course should enable the student to: <ul style="list-style-type: none"> <li>Familiarize with given topic of research by choosing appropriate case studies through visits and documentation.</li> <li>Understand the resources available at National and international level through books, literatures and websites.</li> <li>Develop research ideas and Incorporate them.</li> </ul>	LO1	Understand the fundamentals of Research methods before attempting final year Project Thesis.
		LO2	Study and develop basic research principles and research methods.
		LO3	Develop a sustained and coherent argument on an agreed topic, supported by both secondary and primary sources
		LO4	Communicate the result of a systematic programme of research with clear identification of the topic, research issues, the context and the theoretical perspectives.
		LO5	Evaluate significant information sources referred to and draw coherent conclusions relevant to the topic and issues initially identified, from the observations, evidence and arguments presented.
		LO6	Develop the skill of report writing. Prepare a Dissertation report

##### LIST OF TEXT AND REFERENCE BOOKS:

Instruction Manuals on report writing

**5. Elective – VI**

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted						Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/Online)
				Theory Slot			Practical Slot					L	T	P			
				End Term Evaluation		Continuous Evaluation	End Sem. Exam	Continuous Evaluation									
				End Sem.	Proficiency in subject/course	Mid Sem.		Quiz/Assignment/Sessional	Lab work & Sessional			Skill based mini project					
5.	-	ELECTIVE VI	DE- 6	50	10	20	20	-	-	100	3	2	1	-	3	Blended * (2/1)	PP

**i) SUSTAINABLE INTERVENTIONS IN HISTORIC BUILDINGS (210814)**

Objective –

The course aims to obtain knowledge of the creation and evolution of Architectural Conservation in India as well as in western world. It aims to explore the methods of Documentation as well as analysis for Intervention. This course aims to develop an overall understanding of the process of Historic conservation and Preservation.

**UNIT-1 INTRODUCTION TO HISTORIC BUILDINGS**

- Definition of Historic Buildings.
- Definition of Heritage.
- Why Intervention? Justification.
- Concepts of Values, Significance, Authenticity and Integrity.
- Conservation. Ethics in Conservation.

**UNIT-2 RESEARCH IN INTERVENTIONS & CRITICAL ANALYSIS OF HERITAGE COMPONENTS**

- Importance of Research in Heritage Conservation.
- Sources of information like books, archival photographs and maps, folklores, mythology, oral tradition and memories.
- Understanding the Scales of various heritage components: Buildings, Areas, and Towns, Region (Local, National, and International).

**UNIT-3 DOCUMENTATION & DEGREES OF INTERVENTION IN HISTORIC BUILDINGS AND MONUMENTS**

- Introduction to Heritage Database and Surveys for conservation
- Listing and Inventories
- Measured Drawing: Techniques of Measurement, Drawing and Presentation
- Photographic Documentation
- Degrees - Prevention of deterioration, Preservation of the existing state, Consolidation of the fabric, Restoration, Rehabilitation, Reproduction, Reconstruction

**UNIT-4 DECAY AND REMEDIES**

- Introduction to Decay in Cultural property, Materials and Structural failures
- Internal and External environment of historic buildings
- Climatic causes of decay
- Botanical, biological and microbiological causes of decay
- Insects and other pests as causes of decay
- Man-made causes of decay

**UNIT-5 WHAT IS SUSTAINABLE INTERVENTIONS & DESIGNING IN HISTORIC CONTEXT**

- Sustainable Interventions & its steps.
- Concepts of: - Imitation, Inspiration, Innovation, Influence, Evolution, New Design.

**COs & LOs for Furniture Design**

**Overall Course Outcome:** The course aims to obtain knowledge of fundamental concepts and theories of Sustainable interventions which can be applied in historic buildings.

CO1	Students will be able to understand the basic terminology of the subject.	LO1	<b>Understanding</b> basics of historic buildings
		LO2	<b>Understanding</b> definitions of Heritage
		LO3	<b>Discussing</b> the need of Interventions
		LO4	<b>Understanding</b> the concept of values, significance, authenticity, integrity and ethics

CO2	Students will be able to identify the stylistic characteristics of architecture, theories and importance of research	LO1	<b>Recalling</b> importance of research in Heritage Conservation
		LO2	<b>Relating</b> the sources of information and research
		LO3	<b>Reflecting</b> knowledge on various heritage components
CO3	Students will be able to understand the documentation techniques and degrees of intervention	LO1	<b>Identifying</b> various ways of collecting heritage database
		LO2	<b>Learning</b> the types of surveys, listing and documentations
		LO3	<b>Analysing</b> the type suitable for certain type of heritage
		LO4	<b>Correlating</b> the degrees of intervention with the condition of the heritage
		LO5	<b>Apply</b> the knowledge in documenting and assessing a heritage
CO4	Students will be able to elaborate concept of & types of Decay in a building and their remedies.	LO1	<b>Learn</b> the different types of decays in heritage building and precinct
		LO2	<b>Judging</b> effect of the different types of decays in heritage building and precinct
		LO3	<b>Illustrating</b> of the different types of decays in heritage building and precinct in a heritage building and precinct
CO5	Students will be able to design in Historic Context keeping in mind the sustainable solutions	LO1	<b>Associating</b> sustainability with historic design concepts
		LO2	<b>Implementing</b> sustainability in interventions of heritage building and precinct
		LO3	<b>Assessing</b> and applying concepts of , Inspiration, Innovation, Influence, Evolution, New Design

**REFERENCES:**

1. Kenneth Frampton, Modern Architecture: A Critical History, Thames and Hudson, London.
2. Sigfried Giedion, Space time and Architecture: The Growth of a new tradition, Harvard University Press.
3. Tzonis Alexander, Santiago Calatrava, International Publications, January 2005, New York.
4. Steele James, Hassan Fathy - The complete works, London: Thames and Hudson.
5. Conservation of Historic Buildings by Fielden, Bernard, 2003, Architectural Press.
6. Guidelines for Conservation by Fielden, Bernard, 1989, INTACH, New Delhi.
7. Historic England, Practical Building Conservation: Conservation Basics, 2013, Routledge.
8. Contemporary Theory of Conservation by Salvador Munoz-Vinas, 2005, Elsevier.
9. Recording, Documentation, and Information Management for the Conservation of Heritage Places- Guiding Principles by Letellier, Robin, 2007, Getty Conservation Institute. Los Angeles.



**(ii) ENVIRONMENT & ARCHITECTURE (210821)****Objective –**

The course aims to obtain knowledge about Environmental studies and protection from rapid growing anthropogenic activities. Exploring various Architecture Techniques to mitigate them.

**UNIT-1 INTRODUCTION TO THE STUDY OF ENVIRONMENT & URBAN DEVELOPMENT**

Introduction, Concepts and Function: Introduction to environment, its meaning and growing importance in daily life. Built – Environment relationship.

**UNIT-2 RELATIONSHIP BETWEEN ARCHITECTURE AND URBAN ENVIRONMENT**

Role of Architects and Planners in Building Resilient Cities. Scope and Challenges in Indian Context.

**UNIT-3 URBAN CHALLENGES**

Urban Challenges to the Environment. Concepts like Waste management, Urban Heat Island Effect, Energy consumption, Climate change etc.

**UNIT-4 GREEN RATING SYSTEMS IN ARCHITECTURE**

Introduction to Green Rating Systems in India and Abroad. Criteria for listing under GRIHA LEAD, IGBC Etc

**UNIT-5 ENVIRONMENTAL IMPACT ASSESSMENT**

Introduction to Environmental Impact Assessment (EIA), Process including Scoping, Screening, Establishing Baseline conditions, Case examples.

**COs & LOs for Environment & Architecture**

**Overall Course Outcome:** The basic objective of this course is to develop the student's understanding towards the importance of ecological studies and environmental protection from rapidly growing anthropogenic activities. This course would let the students explore various architectural techniques in mitigating environmental degradation and achieving sustainable living.

CO1	Students will be able to <b>summarize</b> elementary knowledge to earth's natural environment and Urban Development	LO1	<b>Define</b> basic terms used in Environmental Study.
		LO2	<b>Outline</b> the relationship between built and Environment.
		LO3	<b>Analyze</b> the concept of Environmental studies.
		LO4	<b>Conclude</b> the various factors impacting environmental degradation, climate change, carbon footprint, relationship with human beings and built, Urban Development, etc.
CO2	Students will be able to <b>highlight</b> emerging human activities relating architecture & urban environment	LO1	<b>List</b> various human activities since industrialization till date impacting nature.
		LO2	<b>Demonstrate</b> impact of such activities with the help of suitable case examples
		LO3	<b>Analyze</b> the relationship between man and its natural surroundings, focusing on negative impacts of manmade activities on the environment.
		LO4	<b>Evaluate</b> the need of environmental protection and economic activities
CO3	Students will be able to <b>relate</b> urban ecology with its challenges.	LO1	<b>Define</b> ecology in terms of growing urbanization and technological advancement
		LO2	<b>Summarize</b> the need of alternative technologies to harmonize nature.
		LO3	<b>Develop</b> environmental sensitivity
		LO4	<b>Examine</b> application of available alternatives
CO4	Students will be able to <b>perceive</b> the role of green rating systems in architecture	LO1	<b>Recollect</b> the Green rating systems in India and abroad
		LO2	<b>Exemplify</b> the application Green rating systems in Architecture
		LO3	<b>Relate</b> various practical purpose of ecology and environment in the field of architecture and planning
		LO4	<b>Apply</b> the various Green rating systems
CO5	Students will be able to <b>assess</b> the Environmental Impact	LO1	List various factors of EIA and its process
		LO2	Assess the Environmental Impact over an area or specific region.

**REFERENCES:**

1. Fundamentals of Ecology by E.P. Odum
2. Review Our Dying Planet by Sarala Devi
3. Ecological Crisis: Reading for Survival by G. A. Love & R.M. Love

## 6. Elective- VII

**OBJECTIVE**-The objective of the subject is to introduce the students about the best teaching learning resources and programs initiated by the Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The course is opted from NPTEL platform in traditional mode. Elective- V

S. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted								Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)	
				Theory Slot				Practical Slot			MOOC			L	T	P				
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation											
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project	Assignment			Exam						
6.	-	ELECTIVE VII	DE- 7	-	-	-	-	-	-	-	25	75	100	3	2	1	-	3	Offline*	MCQ

S no	Elective	Sub code	Sub Name	Remarks
1	ELECTIVE VII#	210861	Urban Services Planning	opted from NPTEL platform (July- Dec 2021)
		210862	Structure, Form, and Architecture: The Synergy	
		210863		

Opted from NPTEL platform (July- Dec 2023)

## 7. Seminar / Workshop/ Training(210819)

. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Exam	Mode of Teaching (Offline/ Online)
				Theory Slot				Practical Slot					L	T	P			
				End Term Evaluation		Continuous Evaluation		End Sem. Exam	Continuous Evaluation									
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/ Assignment /Sessional		Lab work & Sessional	Skill based mini project								
7.	210819	Tour/ seminar / NASA/Workshop/ining during winter break	SEC- 1	-	-	-	-	50	-		50	50	-	-	2	1	Offline	SO

Tour/ seminar/ Workshop/ Training during winter break will be evaluated in VIII semester

**FIFTH YEAR NINTH SEMESTER****1. Professional Training (210911)**

. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Teaching (Offline/Online)	Mode of Exam		
				Theory Slot				Practical Slot					End Sem. Exam	L	T				P	
				End Term Evaluation		Continuous Evaluation		Continuous Evaluation		Lab work & Sessional										Skill based mini project
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/Assignment/Sessional													
1.	210911	Professional Training	PAEC-7	-	-	-	-	400	300	-	700	38	-	-	38	19	Off-campus	SO		

**2. Thesis Project I (210913)**

. No.	Subject Code	Subject Name	Category	Maximum Marks Allotted							Total Marks	CT HRS	Contact Periods per week			Total Credits	Mode of Teaching (Offline/Online)	Mode of Exam		
				Theory Slot				Practical Slot					End Sem. Exam	L	T				P	
				End Term Evaluation		Continuous Evaluation		Continuous Evaluation		Lab work & Sessional										Skill based mini project
				End Sem.	Proficiency in subject/course	Mid Sem.	Quiz/Assignment/Sessional													
2.	210913	Thesis Project I	PAEC-8	-	-	-	-	50	50	-	100	4	-	-	4	2	Online	SO		

## Unit 2: Assessment and Site Analysis for Retrofitting

Methods for site evaluation and analysis for retrofitting projects. Identification of opportunities and constraints in retrofitting existing structures. Site Assessment for Retrofitting.

## Unit 3: Sustainable Retrofitting Techniques

Strategies and technologies for energy-efficient retrofitting. Sustainable materials and innovative technologies in retrofitting projects. Techniques for Sustainable Retrofitting.

## Unit 4: Design Considerations in Adaptive Reuse

Design considerations and challenges in adapting existing structures. Balancing preservation with modern functionality in adaptive reuse projects. Design Principles in Adaptive Reuse.

## Unit 5: Case Studies and Project Implementation

Analysis of successful adaptive reuse and retrofitting projects. Development and presentation of a sustainable retrofitting proposal. Case Studies and Project Implementation.

### COs & LOs for Adaptive Reuse and Sustainable Retrofitting

**Overall Course Outcome:** The course aims to obtain knowledge of fundamental concepts and theories of Adaptive reuse of old or heritage buildings and Sustainable retrofitting interventions which can be applied in historic buildings. Implement sustainable retrofitting strategies to transform existing structures into environmentally efficient spaces.

CO1	Students will comprehend the principles and significance of adaptive reuse in sustainable architectural design.	LO1	<b>Recall</b> and explain the concept and benefits of adaptive reuse in architecture.
		LO2	<b>Understand</b> the significance of adaptive reuse in achieving sustainability in architectural design.
		LO3	<b>Apply</b> principles of adaptive reuse to analyze potential opportunities in existing structures.
		LO4	<b>Analyze</b> and compare the environmental benefits of adaptive reuse compared to new construction.
		LO5	<b>Create</b> preliminary design concepts demonstrating the potential for adaptive reuse in a given context.
CO2	Students will be able to analyze and assess existing structures for retrofitting opportunities, identifying constraints and possibilities.	LO1	<b>Recall</b> and list methods used for site evaluation and analysis in retrofitting projects.
		LO2	<b>Understand</b> the importance of thorough site assessment in identifying opportunities for retrofitting.
		LO3	<b>Apply</b> site analysis techniques to evaluate a given structure for potential retrofitting opportunities.
		LO4	<b>Analyze</b> the constraints and challenges associated with retrofitting existing structures.
		LO5	<b>Create</b> a site assessment report highlighting opportunities and constraints for retrofitting.
CO3	Students will evaluate and apply sustainable retrofitting techniques and technologies for energy-efficient design solutions.	LO1	<b>Recall</b> and describe sustainable retrofitting techniques and technologies.
		LO2	<b>Understand</b> the principles behind energy-efficient retrofitting strategies.
		LO3	<b>Apply</b> sustainable retrofitting techniques to propose energy-efficient design solutions.
		LO4	<b>Analyze</b> the effectiveness of different sustainable materials and technologies in retrofitting projects.
		LO5	<b>Create</b> a sustainable retrofitting plan integrating innovative technologies and materials.
CO4	Students will demonstrate the ability to integrate preservation principles with modern functionality in design considerations for adaptive reuse.	LO1	<b>Recall</b> and list design considerations and challenges in adapting existing structures.
		LO2	<b>Understand</b> the balance between preservation and modern functionality in adaptive reuse projects.
		LO3	<b>Apply</b> preservation principles to propose design solutions for adaptive reuse projects.
		LO4	<b>Analyze</b> the architectural integrity of existing structures and its implications in adaptive reuse.
		LO5	<b>Create</b> design concepts that harmonize preservation with contemporary design needs.
CO5	Students will present and propose a sustainable retrofitting project, synthesizing the principles learned into a comprehensive proposal.	LO1	<b>Recall</b> and summarize key features of successful adaptive reuse and retrofitting projects.
		LO2	<b>Understand</b> the factors contributing to the success of sustainable retrofitting projects.
		LO3	<b>Apply</b> lessons from case studies to develop a sustainable retrofitting proposal.
		LO4	<b>Analyze</b> and evaluate the environmental and economic impacts of implemented retrofitting projects.
		LO5	<b>Create</b> and present a comprehensive sustainable retrofitting proposal for an existing structure.

### References:

1. Canter, D., & Warren, P. H. (2017). *Sustainable Urban Development Reader*. Routledge.
2. Heerwagen, J., & Loveland, J. (2014). *Adaptive Strategies for Waterfront Structures: Buildings, Infrastructure, and Urban Sites*. W. W. Norton & Company.

3. Roodman, D. M. (2017). *Sustainable Retrofit and Facilities Management*. Routledge.
4. Schmidt, M., & Zundel, M. (2018). *Adaptive Reuse: Extending the Lives of Buildings*. Birkhäuser.
5. Smith, P. A. (2018). *Sustainable Retrofitting of Commercial Buildings: Cool Climates*. Routledge.
6. Steemers, K., & Yannas, S. (2012). *Architecture and Environmental Engineering: Approaches for Energy and Environmental Studies in Building Design*. Routledge.
7. Chatterjee, P. K., & Dutta, K. (2018). *Sustainable Building Design and Construction: Case Studies of LEED*. Springer India.

## (ii) Cultural Architecture and Identity (211012)

**Objective** - Students will acquire a comprehensive understanding of Cultural Identity and importance of Architecture and analyze the influence of cultural identity on architectural forms and styles. also they will be able to apply cultural elements creatively in architectural design to reflect and respect diverse cultural identities.

### Unit 1: Understanding Cultural Identity in Architecture

Introduction to Cultural Identity. Exploration of cultural identity and its significance in architectural design. Influence of cultural factors on architectural styles and elements

### Unit 2: Vernacular Architecture and Indigenous Building Techniques

Study of Vernacular Architecture. Examination of indigenous building techniques and materials. Analysis of how local culture influences architectural forms and functions

### Unit 3: Preservation and Conservation of Cultural Heritage

Heritage Conservation Principles. Principles and methodologies of preserving cultural heritage sites and structures. Importance of adaptive reuse and restoration in maintaining cultural identity

### Unit 4: Modern Architecture and Cultural Context

Modern Architectural Movements and Cultural Context. Examination of how modern architectural movements integrate or contrast with cultural identity. Analysis of contemporary design's role in preserving or altering cultural identity

### Unit 5: Cultural Expression through Contemporary Architecture

Contemporary Cultural Architecture. Exploration of contemporary architectural expressions reflecting cultural identity. Examination of diverse approaches to integrating cultural elements in modern designs

### COs & LOs for Cultural Architecture and Identity

**Overall Course Outcome:** The course aims to obtain knowledge of Integrating diverse cultural elements into architectural designs, preserving and reflecting cultural identities.

CO1	Students will <b>comprehend</b> the significance of cultural identity in architectural design, recognizing its influence on architectural styles and elements.	LO1	<b>Recall</b> and describe the significance of cultural identity in architectural design.
		LO2	<b>Understand</b> how cultural factors influence architectural styles and elements.
		LO3	<b>Apply</b> knowledge of cultural identity to analyze architectural designs in different cultural contexts.
		LO4	<b>Analyze</b> and compare the influence of culture on various architectural styles.
		LO5	<b>Develop</b> design concepts that integrate cultural identity elements into architectural projects.
CO2	Students will <b>analyze and differentiate</b> indigenous building techniques and materials, understanding their role in shaping architectural forms.	LO1	<b>Recall</b> and list various indigenous building techniques and materials used in vernacular architecture.
		LO2	<b>Understand</b> the relationship between local culture and architectural forms in vernacular architecture.
		LO3	<b>Apply</b> knowledge of indigenous building techniques to propose sustainable design solutions for contemporary architectural projects.
		LO4	<b>Analyze</b> and compare the influences of different cultural elements on the design and construction of vernacular buildings.
		LO5	<b>Create</b> design proposals that incorporate indigenous building techniques, respecting and reflecting cultural traditions.
CO3	Students will <b>evaluate and apply</b> principles and	LO1	<b>Recall</b> and summarize the principles of preserving cultural heritage sites and structures.
		LO2	<b>Understand</b> the importance of adaptive reuse and restoration in maintaining cultural identity in

	methodologies of preserving cultural heritage, advocating for adaptive reuse.		architectural conservation.
		LO3	<b>Apply</b> preservation methodologies to propose restoration strategies for a specific cultural heritage site.
		LO4	<b>Analyze</b> the ethical dilemmas and challenges in balancing modern needs with preserving cultural heritage in architecture.
		LO5	<b>Develop</b> preservation plans that integrate modern functionality while respecting the cultural significance of heritage structures.
CO4	Students will <b>assess and critique</b> the relationship between modern architectural movements and cultural context, analyzing their impact on cultural identity.	LO1	<b>Recall</b> and identify key modern architectural movements and their relation to cultural contexts.
		LO2	<b>Understand</b> how cultural contexts influence the evolution of architectural styles in modernity.
		LO3	<b>Apply</b> knowledge of modern architectural movements to analyze their impact on preserving or altering cultural identity.
		LO4	<b>Analyze</b> and compare the ways modern architecture reflects or challenges cultural norms and identities.
		LO5	<b>Create</b> design proposals that harmoniously blend modern architectural elements with cultural context.
CO5	Students will demonstrate the ability to <b>integrate</b> cultural elements into contemporary architectural designs, reflecting an understanding of diverse cultural expressions in modern architecture.	LO1	<b>Recall</b> and list contemporary architectural expressions reflecting cultural identity.
		LO2	<b>Understand</b> the diverse approaches used to integrate cultural elements into modern architectural designs.
		LO3	<b>Apply</b> various design approaches to propose innovative architectural solutions rooted in cultural identity.
		LO4	<b>Analyze</b> and critique the effectiveness of different strategies for integrating cultural elements in contemporary designs.
		LO5	<b>Create</b> original design concepts that authentically represent cultural identity in contemporary architectural projects.

#### References:

1. Ching, F. D. K. (2015). *Architecture: Form, Space, and Order*. John Wiley & Sons.
2. Kostof, S. (1999). *The City Shaped: Urban Patterns and Meanings Through History*. Bulfinch Press.
3. Kubler, G. (1982). *The Shape of Time: Remarks on the History of Things*. Yale University Press.
4. Morris, A. E. J. (1995). *History of Urban Form: Before the Industrial Revolutions*. Wiley-Blackwell.
5. Pile, J. F. (2018). *A History of Interior Design*. Laurence King Publishing.
6. Trachtenberg, M., & Hyman, I. (2002). *Architecture: From Prehistory to Postmodernity*. Prentice Hall.
7. Alsayyad, N., & Mejia-Hernandez, J. (Eds.). (2011). *Transnationalism in Architecture*. Routledge India.

#### (iii) Social Impact Design and Community Engagement (211013)

**Objective** - Students will acquire a comprehensive understanding of Social Impact Design and analyze the influence of community on overall design. Also they will be able to apply Community Engagement creatively in urban design to reflect and respect diverse communities.

##### Unit 1: Introduction to Social Impact Design

Understanding Social Impact Design. Definition and significance of social impact design in architecture. Historical context and evolution of community-engaged design practices. Case studies showcasing successful social impact design projects

##### Unit 2: Community Engagement Methods and Tools

Methods for Community Engagement. Techniques for effective community engagement in design processes. Participatory design methods and tools for involving stakeholders. Ethical considerations and challenges in community-engaged design

##### Unit 3: Social Impact Assessment in Design

Assessing Social Impact in Architecture. Principles of assessing social impact in architectural projects. Tools and frameworks for evaluating the social outcomes of designs. Case studies illustrating successful social impact assessments

##### Unit 4: Designing for Social Change

Design Strategies for Social Change. Strategies for integrating community needs into design solutions. Implementing inclusive design principles for diverse communities. Addressing social inequalities through architectural interventions

## Unit 5: Implementation and Project Showcase

Implementation of Social Impact Design. Project planning and execution for social impact initiatives. Showcasing successful projects and their impact on communities. Reflection on the role of architects in fostering social change through design

<b>COs &amp; LOs for Social Impact Design and Community Engagement</b>			
Overall Course Outcome: The course aims to obtain knowledge of Developing inclusive design strategies that positively impact communities through collaborative engagement and ethical practices.			
CO1	Students will be able to critically <b>appraise and defend</b> the significance of social impact design in architecture, evaluating its historical context and evolution.	LO1	<b>Recall</b> and summarize key historical milestones and influential movements in social impact design within architecture.
		LO2	<b>Explain</b> the evolution of social impact design, analyzing its shifts and influences over different architectural eras.
		LO3	<b>Apply</b> historical knowledge to demonstrate how social impact design has evolved and contributed to addressing specific societal challenges.
		LO4	<b>Break down</b> and categorize the elements that have led to the success or failure of significant social impact design initiatives.
		LO5	<b>Develop</b> a persuasive argument defending the importance of social impact design in modern architecture, integrating historical evidence to support the argument.
CO2	Students will be able to <b>synthesize and design</b> comprehensive community engagement strategies using participatory methods and ethical considerations, ensuring effective collaboration.	LO1	<b>Memorize</b> ethical considerations and principles that guide architects in engaging with diverse stakeholders.
		LO2	<b>Describe</b> the impact of different participatory methods on stakeholder involvement and collaboration in architectural projects.
		LO3	<b>Apply</b> various participatory methods to create a community engagement plan for a hypothetical architectural project.
		LO4	<b>Analyze</b> and evaluate the effectiveness of different community engagement methods in achieving stakeholder collaboration and inclusivity.
		LO5	<b>Design</b> a comprehensive and adaptable community engagement strategy integrating multiple participatory methods for a real-world architectural project.
CO3	Students will be able to <b>evaluate and appraise</b> the social impact of architectural designs using appropriate assessment tools and frameworks.	LO1	<b>Recall</b> and list different assessment tools commonly used to measure social impact in architectural designs.
		LO2	<b>Explain</b> the significance of assessing social impact in architectural designs, elucidating its importance in addressing community needs.
		LO3	<b>Apply</b> different assessment tools to evaluate the potential social impact of proposed architectural designs.
		LO4	<b>Analyze</b> and interpret the data collected from social impact assessments to determine the potential effects of design interventions.
		LO5	<b>Develop</b> a comprehensive social impact assessment plan for a proposed architectural design project, integrating multiple assessment tools and frameworks.
CO4	Students will be able to <b>create and propose</b> innovative architectural design strategies that address social inequalities, utilizing inclusive design principles.	LO1	<b>Recall</b> and list key principles of inclusive design relevant to addressing social inequalities in architectural projects.
		LO2	<b>Explain</b> the relationship between architectural design and social inequalities, demonstrating how design interventions can address these disparities.
		LO3	<b>Apply</b> inclusive design principles to propose architectural solutions that aim to address specific social inequalities within communities.
		LO4	<b>Analyze</b> and evaluate the potential impact of proposed architectural designs on reducing social inequalities within communities.
		LO5	<b>Create</b> innovative architectural design proposals that prioritize addressing social inequalities, integrating inclusive design principles and considering diverse community needs.
CO5	Students will be able to <b>demonstrate, analyze, and present</b> successful architectural projects showcasing their positive impact on communities.	LO1	<b>Recall</b> and list key elements of successful architectural projects that positively impact communities.
		LO2	<b>Explain</b> the role of architects in fostering social change through design interventions, illustrating their impact on communities.
		LO3	<b>Apply</b> reflective practices to analyze the impact of architectural projects on communities, considering diverse perspectives and stakeholders.
		LO4	<b>Analyze</b> and evaluate the long-term effects of successful architectural projects on the social fabric and well-being of communities.

		LO5	<b>Create</b> compelling presentations showcasing the positive impact of architectural projects on communities, incorporating diverse perspectives and stakeholders' feedback.
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**References:**

1. Baer, W. C., & Dirks, S. (2016). *Design for Good: A New Era of Architecture for Everyone*. Island Press.
2. Brown, T. (2009). *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*. HarperCollins.
3. Dubberly, H., & Pangaro, P. (2009). *What is interaction? Are there different types?.*
4. Farrelly, L. (2014). *The Handbook of Design for Sustainability*. Bloomsbury Publishing.
5. Kolarevic, B. (Ed.). (2008). *Design Computing and Cognition '08: Proceedings of the Third International Conference on Design Computing and Cognition*. Springer Science & Business Media.
6. Mankad, S., & Gaucherel, A. (Eds.). (2019). *Sustainability and Social Responsibility in Higher Education: Perspectives and Practices in India*. Springer.
7. Mehta, V. (2019). *Architectural Identity in India: Through Time and Beyond*. Niyogi Books.