SYLLABUS

for

MASTERS IN ARCHITECTURE M.ARCH (GENERAL)

(To be implemented w.e.f. A.Y. 2025-26)

MASTERS IN ARCHITECTURE (GENERAL)

2Year (4-Semester) Program Structure

PREAMBLE

The Master's program in General Architecture is designed to equip students with a comprehensive understanding of the built environment, integrating advanced architectural design principles with specialized knowledge in Conservation, Urban Design, Sustainability, and Planning. This two-year (four-semester) program fosters an interdisciplinary approach, enabling students to address contemporary challenges in architecture and urban development through research, innovation, and practice-based learning.

Vision/ Mission

The program aims to develop professionals who can critically engage with the complexities of urbanization, heritage conservation, environmental sustainability, and infrastructural development. It seeks to create architects and planners who contribute meaningfully to society through design excellence, research, and policy advocacy.

The program provides students with a strong theoretical foundation and practical expertise in the fields of Conservation, Urban Design, Sustainability, and Planning. It integrates project management, transportation, infrastructure, housing, real estate, and socioeconomics into architectural education, ensuring a well-rounded professional skill set. Furthermore, it enhances students' ability to analyze, design, and implement solutions that address environmental, social, and economic aspects of architecture. A research-driven mindset is cultivated, preparing graduates for academia, practice, and policymaking in national and international contexts. The program also fosters leadership, innovation, and ethical responsibility, encouraging students to contribute to sustainable urban and rural development.

Program Educational Objectives (PEOs)

I. Become competent architects with the ability to critically analyze and discern complex urban challenges, identifying innovative and sustainable solutions through both in-depth expertise and interdisciplinary approaches.

II. Secure rewarding employment in architectural firms or the building sector by applying specialized knowledge and expertise.

III. Become a part of organizations that shape policy and decision-making by contributing in-depth expertise in relevant fields of study.

IV. Pursue a career as a researcher or teacher, applying critical, investigative, and analytical thinking to shape the future of society.

V. Evolve as a visionary thinker and entrepreneur, capable of anticipating and shaping future transformations in the built environment.

Graduate Attributes & Learning Outcomes

Upon completion of the program, graduates will be able to analyze and design built environments with a focus on sustainability, heritage conservation, and urban planning. They will apply advanced methodologies and technological innovations to real-world architectural challenges and demonstrate expertise in transportation systems, infrastructure planning, real estate development, and socioeconomics. Graduates will employ data-driven decision-making and simulation techniques for sustainable architectural solutions while leading multidisciplinary projects with a strong understanding of policy frameworks, governance structures, and community engagement. Additionally, they will exhibit research proficiency, contributing to the academic and professional discourse in architecture and urban studies.

Program Structure & Pedagogy

The structure of this program is carefully designed to provide a balanced specialization exposure in the first year, ensuring that students receive a well-rounded education. Each semester incorporates a diverse mix of courses in Conservation, Urban Design, Sustainability, and Planning, allowing students to build a strong foundation across these critical domains. This integrated approach prepares them to understand the interplay between these fields and equips them with the knowledge necessary to make informed decisions for their future specialization.

A key highlight of the program is the emphasis on interdisciplinary studios, which are structured to foster collaboration between different specializations. These studios encourage students to apply their learning in a holistic manner, integrating principles from Conservation, Urban Design, and Sustainability into their projects. By working on complex, real-world challenges that require a multidisciplinary perspective, students develop problem-solving skills that are crucial for professional practice.

To provide greater flexibility in learning, the program includes a structured elective system. Students are required to take at least one elective from each specialization area, ensuring exposure to a broad spectrum of knowledge while allowing them to tailor their education to their interests. This approach encourages exploration while maintaining a strong foundational understanding across all specializations.

Practical skill development is another core aspect of the curriculum, supported by short, intensive workshops that focus on essential industry-relevant skills. These workshops provide hands-on experience in areas such as GIS mapping, heritage documentation, energy modeling, and smart city planning, bridging the gap between theoretical knowledge and practical application. By engaging with these tools and techniques early in their education, students gain the confidence to work on real-world projects effectively.

The program also prioritizes industry and research exposure, ensuring that students are well-prepared for professional practice. Internship opportunities in Conservation, Urban Design, and Sustainability allow students to gain valuable hands-on experience and develop industry connections. Additionally, the selection of a thesis topic in the second year enables students to specialize in an area of their choice,

aligning with their career aspirations and research interests. This structure not only strengthens their expertise but also provides a pathway for further academic or professional growth.

Scope & Career Prospects

Graduates of the program will be well-positioned for careers in architectural and urban design firms, conservation consultancy and heritage management, infrastructure development and urban planning agencies, sustainability consulting and green building initiatives, government organizations, NGOs, and international institutions, as well as academia and research institutions. By offering a holistic and forward-thinking approach to architecture, this Master's program empowers students to become leaders in shaping sustainable, resilient, and culturally significant built environments.

Program Outcomes (POs)

After going through two years of study, our M. Arch (General) Graduates will exhibit ability to:

1. Conduct independent research, investigations, and design development to address real-world challenges in the urban environment.
2. Executing and managing architectural and urban projects by integrating strategic planning, resource management, and multidisciplinary coordination.
3. Develop urban solutions that thoughtfully integrate environmental considerations.
4. Approach design decisions with an awareness of broader urban, cultural, and socioeconomic contexts.
5. Utilize contemporary tools, methodologies, and approaches to analyze situations and explore innovative design and planning solutions.i wanted to send whatsapp invitation for Student IGBC chapter group

SEMESTER I- 22 Credits

Sr no	Course Title	Course Code	Course Type	Credits		Total Credits	Contact Hours		Total Contact Hours
				Lecture	Studio		Lecture	Studio	
1	Interdisciplinary Design Studio 1	ARCH571	Core	-	6	**6**	-	12	12
2	Sustainable Development	ARCH573	Core	3	-	**3**	3	-	3
3	Principles of Conservation & Heritage Management	ARCH574	Core	3	-	**3**	3	-	3

4	Urban Design & Public Space Planning	ARCH575	Core	2	1	**3**	2	2	4
5	Housing and Real Estate	ARCH580	Core	2	-	**2**	-	2	2
6	Skills- GIS	CA 314	Allied	1	1	**2**	1	2	3
7	Elective 1 (Presentation Techniques and Communication skills)	ARCH576	Core	2	-	**2**	2	-	2
8	Workshop 1	ARCH577	Allied	1	-	**1**	0	1	1

SEMESTER I- EXAMINATION SCHEME

Sr no	**Course Title**	**Course Code**	**Proposal for marking Scheme**		
			Internal assessment	**Theory**	**External Jury**
			Total marks		
1	Interdisciplinary Design Studio 1	ARCH571	200		100
2	Sustainable Development	ARCH573	100	50	-
3	Principles of Conservation & Heritage Management	ARCH574	100	50	-
4	Urban Design & Public Space Planning	ARCH575	100	50	-
5	Housing and real estate	ARCH580	50	50	-
6	Skills- GIS	CA 314	100	-	-
7	Elective 1 (Presentation Techniques and Communication skills)	ARCH576	100	-	-
8	Workshop 1	ARCH577	100	-	-

SEMESTER II- 22 Credits

Sr no	**Course Title**	**Course Code**	**Course Type**	**Credits**		**Total Credits**	**Contact Hours**		**Total Contact Hours**
				Lecture	**Studio**		**Lecture**	**Studio**	
1	Interdisciplinary Design Studio 2	ARCH572	Core		6	**6**	-	12	12
2	Urban Morphology & City Planning	ARCH579	Core	2	1	**3**	2	2	4
3	Project Management	MGMT334	Core	2	-	**2**	2	-	2

4	Infrastructure & Transportation Planning	ARCH581	Core	2	-	**2**	-	2	2
5	Socioeconomics & the Built Environment	ARCH582	Core	3	-	**3**	-	3	3
6	Research Methods	ARCH562	Core	3	-	**3**	-	3	3
7	Elective 2 (Yoga and Meditation)	HUM125	Core	2	-	**2**	-	2	2
8	Workshop 2	ARCH578	Allied	-	1	1	-	2	2

SEMESTER II- EXAMINATION SCHEME

Sr no	**Course Title**	**Course Code**	**Proposal for marking Scheme**		
			Internal assessment	**Theory**	**External Jury**
			Total marks, Passing		
1	Interdisciplinary Design Studio 2	ARCH572	200		100
2	Urban Morphology & City Planning	ARCH579	100	50	-
3	Project Management	MGMT334	50	50	-
4	Infrastructure & Transportation Planning	ARCH581	50	50	-
5	Socioeconomics & the Built Environment	ARCH582	100	50	-
6	Research Methodology	ARCH560	150	-	-
7	Elective 2	HUM125	100	-	-
8	Workshop 2	ARCH578	50	-	-

SEMESTER III- 22 Credits

Sr no	**Course Title**	**Course Code**	**Course Type**	**Credits**		**Total Credits**	**Contact Hours**		**Total Contact Hours**
				Lecture	**Studio**		**Lecture**	**Studio**	
1	Thesis Research & Proposal Development (Thesis Minor)	ARCH697	Core	3	3	**6**	3	6	9
2	Specialization Studio	ARCH622	Core	0	6	**6**		12	12
	Elective 3_Conservation	ARCH623	Core	3	-	**3**	3	-	3

	Practices								
3	Elective 3_Energy Efficient Design	ARCH624	Core	3	-	**3**	3	-	3
	Elective 3_ Urban Systems and Design	ARCH625	Core	3	-	**3**	3	-	3
4	Elective 4_Advanced Conservation Techniques	ARCH626	Core	3	-	**3**	3	-	3
	Elective 4_ Urban climate	ARCH627	Core	3	-	**3**	3	-	3
	Elective 4_ Urban Design Approaches	ARCH628	Core	3	-	**3**	3	-	3
5	Elective 5_ Industry Oriented	ARCH629	Core	3	-	**3**	3	-	3
6	Internship	ARCH631	PP			**1**			

SEMESTER III- EXAMINATION SCHEME

Sr no	**Course Title**	**Course Code**	**Proposal for marking Scheme**		
			Internal assessment	**Theory**	**External Jury**
			Total marks, Passing		
1	Thesis Research & Proposal Development (Thesis Minor)	ARCH697	200	-	100
2	Specialization Studio	ARCH622	200	-	100
	Elective 3_Conservation Practices	ARCH623	100	50	-
3	Elective 3_Energy Efficient Design	ARCH624	100	50	-
	Elective 3_ Urban Systems and Design	ARCH625	100	50	-
4	Elective 4_Advanced Conservation Techniques	ARCH626	100	50	-
	Elective 4_ Urban climate	ARCH627	100	50	-
	Elective 4_ Urban Design Approaches	ARCH628	100	50	-
5	Elective 5_ Industry Oriented	ARCH629	100	50	-
6	Internship	ARCH631	50	-	-

SEMESTER IV- 14 Credits

Sr no	Course Title	Course Code	Course Type	Credits		Total Credits	Contact Hours		Total Contact Hours
				Lecture	Studio		Lecture	Studio	
1	Final Design Thesis	ARCH698	Research Black Book	4	8	**12**	4	16	20
2	Elective 6	ARCH630	Allied	-	2	**2**	-	4	4

SEMESTER IV- EXAMINATION SCHEME

Sr no	Course Title	Course Code	Proposal for marking Scheme		
			Internal assessment	Theory	External Jury
			Total marks		
1	Final Design Thesis	ARCH698	400	-	200
2	Elective 6	ARCH630	100	-	-

YEAR 1 – CORE LEARNING

The first two semesters provide a balanced foundation in Conservation, Urban Design, sustainability, and Planning through core courses, interdisciplinary studios, workshops, and electives.

SEMESTER I (Foundation + Introduction to Specializations)

Sr no	Course Title	Course Code	Course Type	Credits		Total Credits	Contact Hours		Total Contact Hours
				Lecture	Studio		Lecture	Studio	
1	Interdisciplinary Design Studio 1	ARCH571	Core	-	6	**6**	-	12	12
2	Sustainable Development	ARCH573	Core	3	-	**3**	3	-	3
3	Principles of Conservation & Heritage Management	ARCH574	Core	3	-	**3**	3	-	3
4	Urban Design & Public Space Planning	ARCH575	Core	2	1	**3**	2	2	4
5	Project Management	MGMT334	Core	2	-	**2**	2	-	2
6	Skills- GIS	CA 314	Allied	1	1	**2**	1	2	3

7	Elective 1 (Presentation Techniques and Communication skills)	ARCH576	Core	2	-	**2**	2	-	2
8	Workshop 1	ARCH577	Allied	1	-	**1**	0	1	1

Subject Title: **SUSTAINABLE DEVELOPMENT**			
Subject Code: **ARCH573**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	Nil
Total Credits	3	**Total Marks**	150

Aim

to provide students with the core principles and theories of sustainability and to learn sustainable design approaches fostering environmental stewardship, social equity, and economic prosperity across the globe, through sustainable systems, architecture, urbanism, and innovation.

Objectives

1. To introduce the concept of sustainable development, its key principles, and its application in various design contexts, including the built environment, urban planning, and innovation.

2. To define sustainability and understand its environmental, social, and economic dimensions, with a focus on how these aspects influence architecture and urban design.

3. To examine practical strategies and innovative solutions for sustainable systems and design with the application of sustainability framework.

4. To investigate sustainable practices in the built environment, from material selection and construction methods to sustainable design strategies in urban spaces.

5. To provide students with the ability to analyze design strategies for sustainable urbanism to enhance health, wellbeing, quality of life, and social inclusion.

Significance of the Subject

This course is essential in shaping future architects and urban planners who will be equipped to create sustainable environments that balance environmental, social, and economic needs. By exploring the core principles of sustainability and its application across various design contexts, students will develop a

comprehensive understanding of how architecture and urbanism can contribute to a more equitable, sustainable world. The course prepares students to implement innovative and practical design strategies that address global sustainability challenges, foster social inclusion, and ensure that future built environments are resilient, resource-efficient, and promote the well-being of communities.

Course Content

Module 1: Sustainable Development: Concept, Policy, and Framework

Defining sustainability, Key sustainability principles, Sustainability theories, Role of architects and designers in ensuring sustainability, to mitigate climate change and reducing resource consumption; Urban sustainability metrics and indicators; Global and National Approach for ensuring Sustainability, Introduction to Environmental codes for sustainability, Role of urban planning, policies, and governance in addressing global environmental issues.

Module 2: Sustainable Systems and Innovation

Circular Economy, Restorative and Regenerative Design, Adaptive Reuse, Environmental design concepts, Social Inclusion, Sustainability index Framework, Future trends in sustainable design

Module 3: Sustainable Built Environment

Building Science and Sustainability, Sustainable material selection, Sustainable construction techniques and methods.

Module 4: Sustainable Urbanism

Sustainable urbanism, Urban sustainability concepts, Urban Mobility and Sustainable transport, Environment and User-centred design, social sustainability: equity, accessibility and inclusivity, Universal Design and Inclusivity, Intergenerational Design, Gender Sensitive Design, Health, and Wellbeing; Quality of Life, Case studies of sustainable cities.

Pedagogy

1. Reflective Learning and Journals
2. Sustainability Debates and Discussions
3. Interactive Workshops
4. Case Studies and Best Practice Analysis
5. Design Studios and Project-Based Learning
6. Active Learning and Problem-Based Learning
7. Field Trips and Site Visits
8. Guest Lectures and Industry Interaction
9. Collaborative Learning and Peer Review

Method of Evaluation

- Knowledge Mastery: Written exams, quizzes, and assignments
- Practical Application: Case study analysis, design projects, and practical assignments
- Sustainability Assessment: Reading and Reviewing Research papers, project reports, and creating presentations evaluating sustainability indices, metrics, and environmental performance, with an emphasis on tools like sustainability index, and life-cycle analysis.
- Innovative Solutions: Group projects and presentations showcasing innovative sustainability solutions.

- Integrated Design Thinking: Final project or portfolio where students integrate sustainability principles across various design contexts, considering the full spectrum of environmental, social, and economic sustainability.

Learning outcomes

1. Knowledge Mastery: Students will develop a deep understanding of the foundational principles of sustainability and how to apply them across environmental, social, and economic contexts.
2. Practical Application: Students will acquire the skills to design sustainable systems and implement regenerative strategies in the built environment, including urban and architectural projects.
3. Sustainability Assessment: Students will be able to critically evaluate sustainability metrics and frameworks, including Net Zero and sustainability indices, to assess and improve environmental performance.
4. Innovative Solutions: Students will be equipped to implement innovative and adaptive reuse practices, considering local contexts and sustainability challenges to create sustainable designs and systems.
5. Integrated Design Thinking: Overall, students will be prepared to integrate knowledge of sustainability and innovation into their professional practices, ensuring the creation of spaces and systems that are resilient, sustainable, and socially inclusive.

Subject Title: **PRINCIPLES OF CONSERVATION AND CULTURAL HERITAGE**			
Subject Code: **ARCH574**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	150

Aim

The aim of this course is to introduce students to the fundamentals of conservation, its history, principles, charters, legislation, organizations, and basic techniques.

Objective

- To introduce students to the basic concept of Conservation
- To understand the History of conservation
- To make students aware of Charters and its analysis and implications
- Relevance and application of History of Architecture and Culture
- To introduce Values, Significance and legislations in Conservation practices
- Defining the organisations that foster Heritage and Conservation
- To know the Basic techniques in conservation

Significance of the Subject

To lay down the fundamentals of conservation to Identify the value of the buildings; to understand the Conservation Principles theories, methodologies, to develop practical skills in conservation, restoration and rehabilitation of buildings.

Content

1. Definitions
2. History of Conservation
3. Charters: Parameters and elements, Theory of place making
4. History of Architecture and Culture: Various layers and interconnection between them
5. Values, Statement of Significance and Legislations in Conservation
6. Mapping techniques in Conservation

Pedagogy

Classroom Learning: Lectures, Screening documentaries and latest practices
Peer learning:Group discussions and collaborative working
Collaborative and experiential learning
Site Visits
Participatory Surveys
Representation Techniques

Learning Outcomes

- Basics understanding of the field of history and conservation.
- Understanding and evaluating complex structure of the settlement
- Understanding dynamics of conservation
- Analytical skill

Subject Title: **URBAN DESIGN AND PUBLIC SPACE PLANNING**			
Subject Code: **ARCH575**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	2	Internal Assessment	100
Studio periods per week	1	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	150

Aim

The aim of this course is to introduce students to the principles, processes, and techniques of urban design, focusing on the integration of architecture, public spaces, and infrastructure for sustainable urban development.

Objectives

- Gain insights into the historical growth patterns of urban areas and explore the factors that have shaped urban development throughout history.
- Analyze the interdependence of both tangible (e.g., infrastructure, economy, technology) and intangible (e.g., culture, social dynamics, policies) parameters in determining the typology of urban growth patterns.
- Learn and apply key urban design tools, methodologies, and techniques through emerging technologies in shaping the urban design process.
- Learn the techniques for mapping and analyzing urban precincts, including understanding the layers of urban space such as land use, infrastructure, transportation networks, and cultural heritage.
- Study the parameters and elements that define the public realm, such as public spaces, streets, plazas, and parks.

Significance of the Subject

Establishing a strong base for Urban Design through comprehensive understanding of the various trends and practices that have shaped the evolution of urban development, along with a deep recognition of the diverse tangible and intangible factors—such as economic forces, social dynamics, technological innovations, and cultural influences—that continuously shape the growth of cities.

Content

Urban Evolution: Understanding growth patterns of Urban areas throughout history; Understanding interdependence of tangible and intangible parameters which govern typology of Urban Growth Pattern.

Tools & Techniques of Urban Design:

Public Realm: Parameters and elements; Theory of place making

Urban precinct area level Mapping : Various layers and interconnection between them; Analytical techniques for precinct level Urban area.

Pedagogy

Classroom Learning: Lectures; Screening documentaries and latest practices
Peer learning: Exposure to Global Practices, Group discussions and collaborative working
Collaborative and experiential learning : Site Visits, Participatory Surveys, Representation Techniques

Method of Evaluation

1 Understanding of exercises and subjects.
2. Attentiveness in the sessions
3. Time management
4. Quality of outputs and scope of improvement

Learning Outcomes

- Comprehending evolution of Urban areas and trends and practices
- Understanding and evaluating complexities of Urban Fabric
- Understanding dynamics of agencies and stakeholders
- Analytical skill for Urban evaluation

Subject Title: **Project Management**			
Subject Code: **MGMT334**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	2	Internal Assessment	50
Studio periods per week	-	Theory	50
Total Contact period per week	2	External Jury	-
Total Credits	2	**Toral Marks**	100

Aim

To equip students with the knowledge and skills required to manage projects efficiently, focusing on planning, execution, monitoring, and closure while emphasizing sustainable and integrated design practices.

Objective

1. Understand the fundamentals and principles of project management in construction.
2. Learn to apply scope management techniques in project planning and execution.
3. Master tools and techniques for project scheduling, monitoring, and control.
4. Analyse the challenges and constraints of construction projects and formulate effective solutions.
5. Develop proficiency in industry-standard software and methodologies.

Significance of the Subject

Their key significance is to ensure that they can effectively handle real-time challenges across various industries. By focusing on planning, execution, monitoring, and closure, students develop a structured approach to manage projects, improving efficiency, minimizing risks, and optimizing resources.

Additionally, integration of sustainable and holistic design practices into project management is crucial in today's world for encouraging students to consider environmental, social, and economic impacts, fostering responsible decision-making that aligns with global sustainability goals.

Ultimately, students who master these principles become well-rounded professionals, capable of leading projects that are efficient, innovative, and socially responsible while ensuring long-term sustainability and success.

Content

Module1: Basics of Project Management- The concept of a Project; Need and Importance of Project Management; Terminologies in Project Management; Branches of Project Management: Stakeholder Management, Time Management, Risk Management, Communication Management, Quality Management, Resource Management, Facility Management, Operations Management, Contract Management, Organization Management
Module 2: Components of Project Management: Life Cycle of Project Management, Phases of a Project, Knowledge Areas in Project Management, Principles of Project Management, Triple Constraints of Project Management
Module3: Scope Management: Key Concepts About Project Scope, Scope Management Plan, Change-Control and Configuration Management, Creating a Work Breakdown Structure (WBS)
Module 4: Tools and Techniques for Planning & Scheduling : Gantt Charts, Microsoft Project (MSP)

Pedagogy

Classroom Learning: Online as well as offline based lectures from industrialists and project managers; Screening documentaries, Technology-Enabled Learning
Peer learning: Gamification; Literature study; Exposure to Global Practices; Group discussions and collaborative working: Collaborative and experiential learning Site Visits; Representation Techniques, Panel Discussions, Group Problem-Solving Sessions

Method of Evaluation

Understanding of exercises and subjects; Attentiveness in the sessions; Time management; Quality of outputs and scope of improvement; Theoretical understanding, practical application, and analytical skills.

Learning Outcomes

- Foundational concepts of project management and its relevance in architecture and construction.
- Analyse the key components of managing construction projects effectively.
- Comprehend the structure of project management and its various components.
- Acquire skills to define, plan, and manage the scope of construction projects effectively, ensuring alignment with objectives.
- Gain proficiency in planning and scheduling tools, enabling effective time and resource management for construction projects.
- Comprehending evolution of Urban areas and trends and practices
- Understanding and evaluating complexities of Urban Fabric
- Understanding dynamics of agencies and stakeholders

- Analytical skill for Urban evaluation

GEOLOGICAL INFORMATION SYSTEMS (GIS)

Aim

To equip students with a comprehensive understanding of Geographic Information Systems (GIS) and their applications in urban design and planning, enabling data-driven decision-making for sustainable urban development.

Objectives

1. To introduce the fundamental concepts and principles of GIS.
2. To develop proficiency in GIS tools for spatial analysis, mapping, and urban planning applications.
3. To explore the role of GIS in land use planning, transportation systems, infrastructure management, and environmental analysis.
4. To integrate GIS with contemporary urban design and planning practices.
5. To enhance students' ability to apply GIS for problem-solving in urban contexts.

Significance of the Subject

GIS is a crucial tool for urban planners and designers, enabling spatial visualization, analysis, and data integration for effective decision-making. It helps in optimizing land use, planning infrastructure, monitoring environmental changes, and improving urban governance. The subject is essential for sustainable city planning, disaster management, and real-time urban analysis.

Content

The course begins with an introduction to GIS, remote sensing, and spatial data, emphasizing their role in urban planning and design. Students will explore GIS software, its capabilities, and various data collection methods, including surveying, GPS, and satellite imagery. The fundamentals of spatial data handling, such as georeferencing, digitization, and topology, will be covered.

A key focus will be on urban analysis, where students will learn about land use mapping, socioeconomic data visualization, and urban growth assessment. GIS applications in infrastructure and transportation planning will be explored through transportation network analysis, site suitability studies, and traffic flow modeling. Additionally, environmental planning aspects such as climate change mapping, disaster risk assessment, and sustainable resource planning will be integrated into the course.

The subject also delves into GIS applications in smart cities, including policy-making, community engagement, and the integration of GIS with IoT and big data for urban governance. Advanced GIS techniques such as 3D modeling, AI-based spatial analysis, and geospatial data visualization will be introduced. The course concludes with hands-on training in GIS software, real-world case studies, and project-based learning, ensuring that students develop technical proficiency and analytical skills.

Pedagogy

The course will be delivered through lectures and theoretical discussions on GIS concepts, supplemented by hands-on training in GIS software. Students will engage with real-world case studies, participate in workshops and guest lectures by industry experts, and apply their learning in project-based assignments. Field surveys and data collection exercises will provide practical exposure to GIS tools in urban settings.

Method of Evaluation

Assessment will be based on assignments and practical exercises (20%), a mid-semester examination (20%), a case study presentation (20%), a final project report and viva (30%), and class participation in discussions (10%).

Learning Outcomes

Upon completion, students will be able to understand the fundamental concepts of GIS, use GIS software for spatial analysis, apply GIS techniques in real-world urban projects, evaluate spatial data for land use and environmental planning, integrate GIS with emerging technologies, and develop problem-solving skills for urban governance.

ELECTIVE 1

Effective communication is essential for architects to convey their ideas, concepts, and designs clearly and persuasively. This elective focuses on developing presentation techniques and communication skills tailored for architectural professionals. It covers visual storytelling, graphic representation, verbal and written communication, and digital presentation tools to enhance students' ability to articulate and present design proposals effectively. Through hands-on exercises, critiques, and interactive sessions, students will refine their ability to engage with diverse audiences, including clients, stakeholders, and the public, ensuring their architectural vision is communicated with clarity and impact.

SEMESTER II (Advanced Integration & Application)

Subject Title: **URBAN MORPHOLOGY & CITY PLANNING**			
Subject Code: **ARCH579**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	2	Internal Assessment	100
Studio periods per week	1	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	150

Aim

To develop a comprehensive understanding of urban morphology and its influence on city planning, enabling students to analyze the spatial structure, historical evolution, and transformation of urban environments for sustainable and resilient development.

Objectives

1. To introduce the fundamental concepts of urban morphology and city planning.
2. To examine the evolution of urban forms through historical and contemporary perspectives.
3. To analyze the relationship between physical form, social structures, and economic functions in urban environments.
4. To explore planning strategies that respond to morphological characteristics and urban growth patterns.
5. To equip students with analytical tools to assess and design urban spaces.

Significance of the Subject

Urban morphology is critical to understanding how cities evolve and function. By studying urban form, street networks, land use patterns, and public spaces, planners and designers can make informed decisions to enhance urban livability, sustainability, and heritage conservation. This subject bridges historical urban evolution with contemporary city planning approaches, ensuring that urban spaces are responsive to both cultural identity and modern development challenges.

Content

The course begins with an introduction to urban morphology, exploring its theoretical foundations, key concepts, and relevance in city planning. The historical evolution of urban forms will be analyzed, covering ancient, medieval, industrial, and modern cities to understand how planning principles have shaped urban growth. This will lead to an examination of spatial structures, including land use distribution, transportation networks, and the hierarchy of urban spaces.

A significant component of the course focuses on morphological analysis techniques, such as space syntax, typomorphology, and GIS-based spatial studies. These tools will be applied to assess urban fabric, street patterns, and building typologies. The interrelationship between urban form, social behavior, and economic activities will be explored through case studies of planned and organically developed cities.

Students will study contemporary planning approaches that respond to urban morphology, including compact city strategies, transit-oriented development, mixed-use planning, and smart growth principles. Additionally, issues of urban resilience, heritage conservation, and adaptive reuse will be discussed. The course will conclude with practical applications of urban morphology in city planning through mapping, morphological studies, and policy recommendations.

Pedagogy

The subject will be taught through lectures on theoretical foundations, supplemented by case study analyses of cities with distinct morphological characteristics. Practical exercises will include mapping, spatial analysis, and morphological studies using GIS and other analytical tools. Workshops, site visits, and guest lectures by urban planning experts will provide additional insights. Students will engage in project-based learning to apply morphological concepts to real-world planning challenges.

Method of Evaluation

Assessment will consist of assignments and analytical exercises (20%), a mid-semester examination (20%), a case study presentation (20%), a final project report and viva (30%), and class participation in discussions (10%).

Learning Outcomes

By the end of the course, students will be able to understand the principles of urban morphology, analyze the evolution and transformation of urban forms, apply morphological analysis techniques in city planning, assess the impact of urban form on social and economic dynamics, and develop planning strategies that respond to morphological characteristics.

Subject Title: **INFRASTRUCTURE AND TRANSPORTATION PLANNING**			
Subject Code: **ARCH581**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	2	Internal Assessment	50
Studio periods per week	-	Theory	50
Total Contact period per week	2	External Jury	-
Total Credits	2	**Toral Marks**	100

Aim

To equip students with an in-depth understanding of infrastructure systems and transportation planning principles, enabling them to design and manage efficient, sustainable, and inclusive urban mobility and infrastructure networks.

Objectives

1. To provide holistic knowledge on planning, technology, design, operations and management of urban transport.
2. Developing skill sets related to transport system analysis and application of various policy instruments.
3. It covers road network planning, public transit systems, and smart mobility solutions to create efficient, sustainable transportation systems.

4. The course will combine theoretical analysis with practical applications to help students understand how to deal with transport problems in the real world.
5. The students will develop the skills to analyse, design, and implement transportation policies and infrastructure that address urban mobility challenges.

Significance of the Subject

The course ensures efficient mobility, sustainable urban growth, and well-connected spaces. The subject helps to design pedestrian-friendly environments, integrate public transit, and promote green mobility solutions. Understanding transportation planning enables the students to create functional, and liveable urban spaces that enhance both mobility and quality of life.

Content

Module 1: Introduction to Transportation Planning- Role of Transportation in Urban and Regional Development; Key Principles and Objectives of Transportation Planning; Sustainability, Equity, and Accessibility Consideration
Module 2: Road Network Planning and Design- Road Classification and Functional Hierarchy; Highway Capacity and Traffic Flow Analysis; Road Safety and Traffic Management Strategies; Freight and Logistics Planning
Module 3: Public Transit Systems- Planning and Design of Bus, Rail, and Metro Systems; Transit-Oriented Development (TOD); Demand Forecasting and Service Optimization; Integration of Multimodal Transit Networks
Module 4: Sustainable and Inclusive Transportation- Environmental Impact and Emission Reduction Strategies; Non-Motorized Transport (Walking, Cycling, Pedestrian Planning); Universal Design for Accessibility; Policies and Regulations for Sustainable Mobility
Module 5: Policy, Governance, and Implementation- Transportation Policy Frameworks and Regulations; Institutional and Financial Aspects of Transportation Projects; Public-Private Partnerships in Transportation; Stakeholder Engagement and Public Participation

Pedagogy

Lectures on theoretical frameworks will be supplemented with case study analyses of transportation and infrastructure projects. Students will engage in practical exercises, including transport network assessments, mobility planning, and GIS-based mapping. Workshops, guest lectures by industry experts, and site visits to infrastructure projects will provide real-world insights. Group projects will encourage collaborative problem-solving and strategic planning.

Method of Evaluation

Assessment will be based on assignments and analytical exercises (20%), a mid-semester examination (20%), a case study presentation (20%), a final project report and viva (30%), and class participation in discussions (10%).

Learning Outcomes

Upon completion, students will be able to understand the principles of infrastructure and transportation planning, analyze the impact of land use on mobility networks, develop sustainable and efficient transport

strategies, assess infrastructure project feasibility, and apply innovative solutions for urban resilience and smart mobility.

Subject Title: **SOCIOECONOMICS**			
Subject Code: **ARCH582**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	150

Aim

To develop an understanding of the socioeconomic factors influencing urban development, enabling students to analyze and integrate social, cultural, and economic dimensions into sustainable planning and design strategies.

Objectives

1. To introduce fundamental socioeconomic theories and their relevance to urban planning.
2. To examine the relationship between economic development, social structures, and spatial planning.
3. To analyze the impact of policies on housing, employment, migration, and urban poverty.
4. To explore tools for socioeconomic data analysis and decision-making in urban planning.
5. To develop strategies that promote inclusive and equitable urban development.

Significance of the Subject

Socioeconomic factors shape the way cities grow and function, influencing patterns of housing, employment, mobility, and access to resources. Understanding these dynamics is essential for planners, architects, and policymakers to create inclusive and resilient urban spaces. This subject provides insights into the role of economic systems, social equity, and governance in shaping urban development.

Content

Module 1: Introduction to Socioeconomics in Urban Planning- Overview of socioeconomic concepts and their relevance to urban development; The relationship between society, economy, and spatial planning; Urbanization trends and their socioeconomic impacts; Case studies on socioeconomic transformations in cities.

Module 2: Economic Foundations of Cities- Urban economies: formal and informal sectors; Employment patterns, labor markets, and income distribution; The impact of industrialization, globalization, and digital economies on urban growth; Economic resilience and sustainable urban development strategies.

Module 3: Social Structures and Urban Development- Population dynamics: growth, migration, and urban demographic trends; Social stratification and inequality in housing, mobility, and services; Cultural influences on urban form and community development; Public participation and governance in urban planning.

Module 4: Housing, Poverty, and Social Equity- The role of policies in affordable housing, slum rehabilitation, and social housing; Urban poverty and strategies for inclusive development; Informal settlements and challenges in integration with formal urban systems; Social justice and equity in access to infrastructure and resources;

Module 5: Socioeconomic Data Analysis for Urban Planning-Tools for analyzing socioeconomic data: GIS, census studies, and surveys; Techniques for mapping urban inequalities and spatial disparities; Case studies on data-driven planning approaches; Community-based planning and participatory research methods.

Module 6: Smart Cities and Economic Sustainability- The role of technology and digital economies in urban development; Sustainable economic growth models for cities; Emerging trends in smart governance, urban entrepreneurship, and innovation hubs; Global case studies on successful urban economic strategies.

Pedagogy

The course will be delivered through lectures on socioeconomic theories, supplemented by case study analyses and discussions on urban social and economic issues. Practical exercises will include socioeconomic data analysis, mapping, and policy evaluation. Guest lectures from experts in urban economics and social policy, along with participatory workshops, will enhance learning. Students will engage in fieldwork and surveys to assess real-world socioeconomic conditions in urban environments.

Method of Evaluation

Assessment will be based on assignments and socioeconomic analysis exercises (20%), a mid-semester examination (20%), a case study presentation (20%), a final project report and viva (30%), and class participation in discussions (10%).

Learning Outcomes

Upon completion, students will be able to understand key socio economic concepts in urban planning, analyze the impact of economic and social policies on urban development, assess demographic and economic data for planning purposes, propose strategies for equitable urban growth, and integrate socioeconomic considerations into sustainable city planning.

Subject Title: **RESEARCH METHODS TOOLS AND TECHNIQUES**			
Subject Code:			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	150
Studio periods per week	-	Theory	-
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	

Aim

To equip students with the knowledge and skills necessary to conduct systematic research in architecture, urban design, and planning using appropriate methodologies, tools, and analytical techniques.

Objectives

1. To introduce fundamental concepts of research methodology and its applications in architecture and urban studies.
2. To explore qualitative, quantitative, and mixed-method research approaches.
3. To develop skills in data collection, analysis, and interpretation using appropriate tools and techniques.
4. To critically assess research design, ethics, and validity in academic and professional research.
5. To enable students to formulate research questions and apply methodologies for independent research projects.

Significance of the Subject

Research in architecture and urban planning informs evidence-based decision-making, policy development, and innovative design solutions. Understanding research methodologies enhances analytical thinking, problem-solving, and the ability to address contemporary urban challenges through systematic investigation and data-driven insights.

Teaching Modules

Module 1: Introduction to Research in Architecture and Urban Studies- Definition, scope, and significance of research in architecture and urban planning.; Types of research: basic, applied, and action research; Research paradigms: positivism, interpretivism, and critical realism; The research process: problem identification, objectives, and hypothesis formulation.

Module 2: Research Design and Methodological Approaches- Qualitative, quantitative, and mixed-method approaches; Case study research, ethnography, phenomenology, and grounded theory; Experimental and quasi-experimental research; Comparative studies and cross-sectional research in urban planning.

Module 3: Data Collection Techniques- Primary and secondary data sources; Surveys, interviews, and focus group discussions; Observational methods and ethnographic studies; Archival research, literature review, and document analysis.

Module 4: Tools for Data Analysis and Interpretation; Statistical analysis methods: descriptive and inferential statistics; GIS and spatial analysis for urban research; Content analysis, coding, and thematic analysis in qualitative research; Visualization techniques: charts, graphs, and mapping.

Module 5: Research Ethics and Validity- Ethical considerations in research: consent, confidentiality, and integrity; Reliability, validity, and bias reduction in research; Institutional review boards (IRB) and ethical approval processes; Plagiarism, referencing, and academic integrity.

Module 6: Writing and Presenting Research- Structuring research papers, reports, and dissertations; Citation styles (APA, MLA, Chicago) and referencing tools (Zotero, Mendeley); Developing research proposals and grant applications; Effective presentation techniques for research dissemination.

Module 7: Application and Practical Exercises- Hands-on exercises in data collection and analysis; Case studies on research methods applied in architecture and urban planning; Workshop on research proposal development; Peer reviews and feedback sessions on research work.

Pedagogy

The course will include lectures on theoretical concepts, workshops on research tools, hands-on exercises in data analysis, and case studies of applied research. Students will engage in discussions, critiques, and practical applications through research assignments, group projects, and presentations.

Method of Evaluation

Assessment will be based on assignments and research methodology exercises (20%), a mid-semester examination (20%), a research proposal presentation (20%), a final research project and report (30%), and class participation in discussions (10%).

Learning Outcomes

Upon completion, students will be able to understand and apply various research methodologies, design and conduct independent research studies, analyze data using appropriate tools, ensure ethical research practices, and effectively communicate research findings in academic and professional contexts.

ELECTIVE-2

This elective explores the principles and practices of yoga and meditation as tools for enhancing well-being, focus, and mindfulness in professional and personal life. It introduces students to various yoga techniques, breathing exercises (pranayama), and meditation practices that promote physical health, mental clarity, and stress management. Emphasizing the connection between mind and body, this course helps students cultivate discipline, concentration, and inner balance, which are essential for creative thinking and professional efficiency in architecture and related fields. Through guided sessions and theoretical insights, students will develop a holistic approach to wellness and self-awareness.

SEMESTER III (Pre-Thesis & Specialization)

Subject Title: ELECTIVE 3_ **URBAN SYSTEMS AND DESIGNS**			
Subject Code: **ARCH625**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Total Marks**	150

Aim

The aim of this course is to equip students with the knowledge and skills required for the conservation of buildings and precincts, focusing on methodologies, techniques, policies, and sustainable practices for preserving architectural heritage.

Objective

- To comprehend significance of building
- Knowledge of the grading systems
- Conservation mapping through perspective of its dilapidation and stability
- Condition mapping of precinct and its core
- Understanding of how archeological survey and estimation process
- Structural Conservation processes and practices in the field and report generation and assessment.

Significance of the Subject

Comprehensive understanding of interrelationships between services, infrastructure and Urban form.

Content

1. Elements of Building
2. Identifying Significant buildings and mapping
3. Documentation of the Precincts
4. Condition mapping
5. Archeological Surveys and Estimate
6. Structural conservation
7. Precinct and core mapping, analysis and design (tangible & intangible)

Pedagogy

Classroom Learning- Lectures; Screening documentaries and latest practices
Peer learning- Exposure to Global Practices; Group discussions and collaborative working

Collaborative and experiential learning- Site Visits; Documentation and Mapping; Representation Techniques

Method of Evaluation-

Understanding of exercises and subject; Attentiveness in the sessions; Time management ; Quality of outputs and scope of improvement

Learning Outcomes

- The essence of the conservation process is reflected in identifying the value and significance of the building.
- To map and present the characteristics of settlement.
- To learn to analyze and generate survey and estimate of the build form
- To study, analyze and redesign the percent and its core (cultural and architectural)

Subject Title: Elective 3 - **ENERGY EFFICIENT DESIGN**			
Subject Code: **ARCH624**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	150

Aim

The course aims to equip students with advanced knowledge, techniques, and strategies in energy-efficient design that foster sustainable architectural solutions, while addressing the environmental impact of buildings through passive and active design strategies, energy conservation principles, and modern technologies.

Objective

1. To understand the concepts of energy efficiency in the context of architecture.
2. To develop skills to design buildings with minimized energy consumption through passive strategies.
3. To examine and apply active design strategies for energy management systems with integration of renewable energy and smart technologies.
4. To implement energy audit tools for reducing energy consumption, minimizing environmental harm, and ensuring that buildings are energy efficient.
5. To familiarize with energy simulation tools and their application in design processes.

Significance of the Subject

This course is significant as it empowers students with the critical knowledge and practical skills needed to address the pressing challenges of climate change and resource depletion by focusing on energy-efficient architectural design. By mastering both passive and active design strategies, students will be equipped to create buildings that not only reduce energy consumption but also integrate renewable energy solutions and cutting-edge technologies. This expertise will help students contribute to the global shift towards sustainable built environments, ensuring that future architecture is both environmentally responsible and resource-efficient

Content

Module 1: Introduction to Energy-Efficient design

Definition and importance of energy-efficient design, Energy consumption trends in buildings, National and Global Energy rating systems.

Module 2: Passive Design Strategies for Energy Efficiency

Principles of passive design, Concept of heat transfer through building envelope; Natural ventilation strategies and Daylighting strategies, Strategies for Insulation, thermal comfort, visual comfort and acoustics, Shading devices, wind shafts, cavity wall and other related techniques; Case studies on passive building designs.

Module 3: Active Systems and Technologies for Energy Efficiency

Overview of active systems, Indoor Air Quality; Integration of renewable energy in building design; Smart building technologies and energy management systems, Energy storage solutions and efficiency; Optimization of active systems for maximum energy savings.

Module 4: Enhancing Energy Efficiency

Design decisions for balancing passive and active systems for maximum efficiency; Role of materials and construction techniques in enhancing energy efficiency, Waste, water, and energy management, Real-world examples of integrated energy-efficient buildings.

Module 5: Energy Audit and Environmental Impact Assessment

Analysis of building performance vs. design expectations, Energy Usage Analysis, Energy Audit Reports, Building energy management systems and performance monitoring; post-occupancy evaluation methods, Environmental Impact Assessment, Stakeholders Engagement, Decision Making Analyze, Case studies of EIA in real-world architectural projects.

Module 6: Energy Modelling and Simulation

Energy modeling software (e.g., EnergyPlus, EnviMET, Design Builder, IESVE, eQuest), Thermal performance analysis, Evaluating the effectiveness of design strategies, Comparative case studies using energy simulation tools

Pedagogy

Reflective Learning and Journals; Active Learning and Project Based Learning; Interactive Workshops; Case Studies and Best Practice Analysis; Field Trips and Site Visits; Guest Lectures and Industry Interaction; Design Critiques and Peer Reviews; Interactive Simulations & Software Training

Method of Evaluation

1. Understanding and Application of Energy-Efficient Design: Class Test, Reports and Quiz
2. Integrating Passive and Active Approach of Design: Small design project, Approach Selection Framework, Material and Construction Template Design
3. Designing Energy-Efficient Strategies: Project Presentation, Group Work and Discussions, Showcasing Portfolio.
4. Energy Audit and Environmental Impact Evaluation: Energy Audit Report, Environmental Impact Analysis, Workshop – Handson and Presentation
5. Energy Simulation Tools: Simulation Assignment and Report, Capstone Project

Learning Outcomes

1. Understanding and Application of Energy-Efficient Design: Learn and apply the principles of energy-efficient design and learn about national and international energy-efficiency standards and certifications.
2. Integrating Passive and Active Approach of Design: Develop climate-responsive architectural solutions that integrate passive energy strategies and selecting appropriate materials and technologies based on their energy efficiency, sustainability, and environmental impact.
3. Designing energy-efficient strategies: Energy efficient solutions within the overall design process, ensuring a holistic and environmentally responsible approach to architecture.
4. Energy Audit and Environmental Impact Evaluation: Conduct energy audit and evaluate the environmental impact of a building.
5. Energy Simulation Tools: Use energy simulation tools to model, analyze, and optimize building energy performance.

Subject Title: ELECTIVE 3_ **URBAN SYSTEMS AND DESIGNS**			
Subject Code: **ARCH625**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50

Total Contact period per week	3	External Jury	-
Total Credits	3	**Total Marks**	150

Aim

The aim of this course is to provide students with an understanding of urban systems and design principles, focusing on the integration of infrastructure, mobility, environment, and socio-economic factors for sustainable urban development.

Objective

- Analyze the historical, cultural, economic, and political forces that influence the evolution of urban form, helping to decode its various layers.
- Examine the role of essential services (such as water, sanitation, energy, and transportation) and infrastructure in enabling urban functionality, ensuring cities operate smoothly and efficiently.
- Develop the ability to assess the long-term planning and resilience of urban systems, considering how cities can adapt to future challenges like climate change, population growth, and technological advancements.
- Explore various theories and understand the dimensions of urban spaces, examining how people perceive, experience, and navigate urban environments.
- Develop a deep understanding of the interconnectedness between urban services, infrastructure, and urban form, exploring how these elements work together to create functional, sustainable, and resilient urban environments.

Significance of the Subject

Comprehensive understanding of interrelationships between services, infrastructure and Urban form.

Content

Module1 Urban Form: Urban Morphological determinants of a city and components of Urban Form

Module2 Relevance of Services and Infrastructure in Urban Development:Essential Services and Urban Functionality; Long-Term Planning and Resilience

Module3 Contemporary theories: Spatial theories of Urban Design; Cognitive/ Perceptual theories (Psychological dimensions); Behavioral Theories

Pedagogy

Classroom Learning- Lectures; Screening documentaries and latest practices; Peer learning-Exposure to Global Practices; Group discussions and collaborative working. Collaborative and experiential learning : Site Visits; Participatory Surveys; Representation Techniques

Method of Evaluation

Understanding of exercises and subjects; Attentiveness in the sessions; Time management; Quality of outputs and scope of improvement

Learning Outcomes

- To comprehend urban morphology and form through decoding various layers involved in it.
- To read and represent the characteristics of urban form.
- To learn the role of theories in urban design and its application.
- To develop comprehensive understanding of various urban systems.To comprehend urban morphology and form through decoding various layers involved in it.
- To read and represent the characteristics of urban form.
- To learn the role of theories in urban design and its application.
- To develop a comprehensive understanding of various urban systems.

Subject Title: **ELECTIVE 4_ADVANCED CONSERVATION TECHNIQUES**			
Subject Code: **ARCH626**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Toral Marks**	150

Aim

The aim of this course is to equip students with specialized knowledge of advanced conservation techniques, focusing on innovative methodologies, material science, structural stabilization, and sustainable strategies for preserving architectural heritage.

Objective

- Conservation tool sets shall be provided
- Students needs to generate sensitive approach towards Sustainability and Conservation
- Equip students with Latest Digital Tools and Techniques in Conservation (for Documentation)
- To analyse Heritage impact assessment
- Economics of preservation plays a major role in heritage conservation so students should be aware of the practical approaches.
- Intensive work has been seen all over India in material testing technology and well equipped Laboratories are set for research about which students should be updated.
- Community engagement and Education plays vital role in success of conservation projects and its funding

Significance of the Subject

Comprehensive understanding of global trends and practices

Content

- Conservation
- Sustainability and Conservation
- Latest Digital Tools and Techniques in Conservation (for Documentation)
- Heritage impact assessment
- Economics of preservation of heritage
- Material Science and technology (Laboratories)
- Community engagement and Education

Pedagogy

Classroom Learning- Lectures; Screening documentaries and latest practices; Peer learning-Exposure to Global Practices; Group discussions and collaborative working. Collaborative and experiential learning : Site Visits; Participatory Surveys; Representation Techniques

Method of Evaluation

Understanding of exercises and subject; Attentiveness in the sessions; Time management; Quality of outputs and scope of improvement

Learning Outcomes

- Application of the charters and legislations to the project
- Induce the sensitive approach towards sustainable conservation practices
- Skill for adaptive and innovative solutions
- To equip students with latest Laboratory tools and techniques
- Community based approaches and awareness methods

Subject Title: **ELECTIVE 4_ URBAN CLIMATE (S2)**			
Subject Code: **ARCH627**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Total Marks**	150

Aim

The course aims to provide in-depth knowledge about the urban climate and its influence on architectural design and urban planning, with focuses on understanding the relationship between climate systems and urban environments.

Objective

1. To understand the interactions between urban ecological systems, focusing on the impact of human activity, pollution, and urban biodiversity.
2. To provide a comprehensive understanding of urban climate systems, urban environment and the factors that influence microclimate in urban areas.
3. To analyze urban climate issues and how to address environmental, social, and economic challenges posed by them.
4. To study the impact of climate change on urban environments and explore adaptive and mitigative measures.
5. To investigate how architecture and urban planning strategies can promote climate resilience cities.

Significance of the Subject

It equips students with a comprehensive understanding of the intricate relationship between urban environments and climate systems, which is essential for designing sustainable, resilient cities. This course explores how human activity, pollution, and urban biodiversity shape the microclimate and the broader urban climate, fostering the development of strategies that address the social, environmental, and economic challenges of urban climates. Through an in-depth analysis of urban climate systems, the course prepares students to design cities that can adapt to and mitigate climate change effects, ensuring a sustainable and resilient built environment for future generations

Content

Module 1: Urban Ecology

Urban Ecosystem. Urban Ecology; Process of urbanization and its global trends, Urban sprawl and its consequences, Understanding cities as social-ecological systems, Techniques and challenges of urban restoration, Concept of urban biodiversity.

Module 2: Urban Climate Systems

Urban Environment, Fundamental concepts of urban climate systems, Urban Microclimate, Urban Energy Balance; Urban Air Flow; Application of Climatology in Urban Planning and Design.

Module 3: Urban Climate Issues

Urban Heat Island, Urban Air Quality, Urban flooding, Urban Water Systems, Climate Induced Migration; Loss of Green Spaces and Biodiversity, Energy Consumption and Carbon Emissions, Outdoor Thermal Comfort.

Module 4: Climate Change: Impact, Adaptation and Mitigation

Global Warming and Climate Change and its Effect on Urban Climate Patterns, Adaptive Strategies in Urban Design and Architecture, Mitigative Strategies in Urban Design and Architecture; Climate-sensitive urban design strategies, Urban Blue Green Spaces.

Module 5: Climate Resilient Cities

Urban resilience, Concept of Resilient cities, Climate vulnerability assessments for urban areas, Case studies: Climate considerations in various global cities, Tools and Techniques for Urban Climate Planning and Modelling; Role of policy, urban governance, and public awareness; International frameworks and urban climate resilience initiatives.

Pedagogy

Reflective Learning and Journals; Active Learning and Project Based Learning; Interactive Workshops; Case Studies and Best Practice Analysis; Field Trips and Site Visits; Guest Lectures and Industry Interaction; Design Critiques and Peer Reviews; Simulations & Modelling Tools; Hypothetical Research Projects and Policy Proposals.

Method of Evaluation

1. Principles of Urban Ecology and Human-Nature Interactions
Case study Analysis, Class Test and Journal
2. Comprehending the Key Principles that Govern Urban Climate Systems
Class test, quiz or conceptual exam
3. Analyzing Urban Climate Issues, Causes, and Impacts
Case Study Evaluation, reading and Reviewing research and project work
4. Evaluating the Role of Cities in Global Climate Change and Mitigation/Adaptation Strategies
Policy Proposal, Debate and Discussions, Presentations
5. Developing Strategies for Creating Climate-Resilient Urban Spaces
Design Project, Field Work/Survey

Learning Outcomes

1. Principles of Urban Ecology and Human-Nature Interactions: Students will be able to assess the ecological footprint of urban developments, integrating natural elements like parks, green roofs, and biodiversity corridors into urban design to support the ecological balance of cities.
2. Comprehend the key principles that govern urban climate systems: Students will be able to design urban areas that mitigate heat island effects, reduce energy consumption, and manage environmental factors to enhance the comfort and sustainability of urban life.
3. Analyzing Urban Climate Issues, Causes, and Impacts: Students will develop the skills to design solutions to combat the urban climate issues prevalent in specific regions, using methods like green building techniques, renewable energy adoption, and nature-based solutions.
4. Evaluating the Role of Cities in Global Climate Change and Mitigation/Adaptation Strategies: Students will gain the ability to assess the impact of urban activities on global climate change and develop strategies for cities to transition to carbon-neutral, climate-resilient environments through smart policy development, green energy solutions, and sustainable transportation planning.
5. Developing Strategies for Creating Climate-Resilient Urban Spaces: Students will be able to apply their knowledge to create urban spaces that not only enhance climate resilience but also promote social equity, inclusivity, and long-term sustainability.

Subject Title: **ELECTIVE 4_ URBAN DESIGN APPROACHES (UD2)**			
Subject Code: **ARCH628**			
Teaching Scheme		**Examination Scheme**	**Marks**
Theory periods per week	3	Internal Assessment	100
Studio periods per week	-	Theory	50
Total Contact period per week	3	External Jury	-
Total Credits	3	**Total Marks**	150

Aim

The aim of this course is to introduce students to various urban design approaches, focusing on theories, methodologies, and strategies for creating sustainable, functional, and responsive urban environments.

Objective

- Develop the ability to critically evaluate and apply new and emerging theories in urban design to address current urban challenges and innovate solutions for future cities.
- Learn the importance of cultural sensitivity, environmental sensitivity, and social equity in urban design, and how to ensure these factors are prioritized when creating inclusive, sustainable, and community-centric urban spaces.
- Study global examples of successful urban design proposals to understand how different typologies have been implemented around the world, and adapt these lessons to diverse local contexts.
- Apply theoretical knowledge to practical urban design scenarios, ensuring that students can effectively bridge the gap between theories and real-world applications.
- Explore various urban design typologies, focusing on the differences and challenges between greenfield (undeveloped land) and brownfield (previously developed land) projects.

Significance of the Subject

Evolution of innovative Urban Design approaches through comprehensive understanding of global trends and practices

Content

Module 1: Advanced theories for trends and Practices: Place making; Space syntax theories; New theories in urban design; Tactical Urbanism; Pragmatic Urban design

Module 2: Sensitivities; Cultural Sensitivity; Environmental Sensitivity; Social equity; Economic viability; Community participation

Module 3: Typologies of Urban Design Proposals: Global Examples; Scope and spectrum of Greenfield and brownfield projects

Pedagogy

Reflective Learning and Journals; Active Learning and Project Based Learning; Interactive Workshops; Case Studies and Best Practice Analysis; Field Trips and Site Visits; Guest Lectures and Industry Interaction; Design Critiques and Peer Reviews; Simulations & Modelling Tools; Hypothetical Research Projects and Policy Proposals.

Method of Evaluation

Understanding of exercises and subject; Attentiveness in the sessions; Time management; Quality of outputs and scope of improvement

Learning Outcomes

- Bridging the gap between theories and practices
- Analyse and ensure various types of sensitivities in Urban Design and incorporate it in solutions accordingly
- Distinguish between and design for different typologies of urban development
- Skill for adaptive and innovative solutions

ELECTIVE 5 (Industry Oriented)

This elective is designed to bridge the gap between academic learning and professional practice by equipping students with industry-relevant skills, knowledge, and methodologies. It focuses on real-world applications, emerging trends, and best practices in architecture, urban design, and planning. Through interactive sessions, case studies, expert talks, and hands-on projects, students will gain insights into professional workflows, regulatory frameworks, technological advancements, and market dynamics. The course aims to enhance students' readiness for the industry by fostering practical problem-solving, critical thinking, and collaborative engagement with professionals in the built environment sector.

SEMESTER IV (Thesis and Final Projects)

FINAL DESIGN THESIS

The Final Design Thesis is a comprehensive, research-driven project that serves as the culmination of the Master's program. Under this, students will undertake an in-depth study on a topic of their interest, aligned with their future career goals and academic pursuits. They will conduct extensive theoretical and contextual research, analyze relevant case studies, and formulate a clear design methodology.

As part of the thesis, students will produce a black-bound book report that documents their research, analysis, and conceptual framework in a structured and professional manner. Based on their findings, they will develop a design project that translates their research into an innovative and contextually responsive architectural or urban solution. The entire process, from research to design development, will form the core of the thesis, demonstrating the student's ability to integrate critical thinking, technical expertise, and creative problem-solving in addressing real-world challenges.

ELECTIVE 6 (Online mode)

The online elective offers students the flexibility to choose specialized courses that align with their future career interests and thesis requirements. This elective allows students to explore emerging trends, advanced methodologies, and interdisciplinary knowledge through reputed online platforms and industry collaborations. By selecting a course tailored to their professional aspirations, students can deepen their expertise in areas such as sustainability, urban analytics, conservation technologies, real estate, digital design, or infrastructure planning. This self-directed learning approach enhances their technical proficiency, research capabilities, and industry readiness, preparing them for specialized roles in the built environment.