



## Koneru Lakshmaiah Education Foundation

(Category -1, Deemed to be University estd. u/s. 3 of the UGC Act, 1956)

Accredited by NAAC as 'A++' ♦ Approved by AICTE ♦ ISO 21001:2018 Certified

**Campus:** Green Fields, Vaddeswaram - 522 302, Guntur District, Andhra Pradesh, INDIA.

Phone No. +91 8645 - 350 200; [www.klef.ac.in](http://www.klef.ac.in); [www.klef.edu.in](http://www.klef.edu.in); [www.kluniversity.in](http://www.kluniversity.in)

**Admin Off:** 29-36-38, Museum Road, Governorpet, Vijayawada - 520 002. Ph: +91 - 866 - 3500122, 2576129

### DEPARTMENT OF ARCHITECTURE PROGRAM DEVELOPMENT DOCUMENT PROGRAM NAME: BACHELOR OF ARCHITECTURE 2024-2025

#### **Vision of University:**

To be a globally renowned university.

#### **Mission of University:**

To impart quality higher education and to undertake research and extension with emphasis on application and innovation that cater to the emerging societal needs through all-round development of students of all sections enabling them to be globally competitive and socially responsible citizens with intrinsic values.

#### **Vision of Department:**

To be one of the globally renowned architectural schools.

#### **Mission of Department:**

To impart higher quality education making the students well equipped to face the challenges of the present & future trends in the architectural field enabling them to be globally competitive and socially responsible architects with intrinsic values.

#### **Mission statements:**

M1: Impart quality higher education and research, taking into consideration the local and national scenario of architecture profession.

M2: To make the students well equipped to face the challenges of the present and future trends in the architectural field.

M3: Enabling them to be globally competitive, with a perspective of global trends and practices in architecture and designing fraternity.

#### **Academic Goals:**

G1: To offer academic flexibility by means of Choice based credit systems and the like.

G2: To identify and introduce new specializations and offer programs in emerging areas therein.

G3: To incorporate into the curriculum the Application orientation and use high standards of competence for academic delivery.



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G4: To design and implement educational system adhering to outcome based international models.

G5: To introduce and implement innovation in teaching and learning process to strengthen academic delivery.

G6: To offer academic programs at UG, PG, doctoral, post-Doctoral which are industry focused, and incorporate Trans-discipline, inter-discipline aspects of the education system.

G7: To deliver higher education that includes technologies and meeting the global requirements.

### Program Educational Objectives (PEOs):

PEO1. Should be able to stimulate artistic sensitivity and creative powers. (SKILL)

PEO2. Strengthen intellectual growth and the capacity to develop creative and responsible solutions to unique and changing problems (EMPL)

PEO3. Acquire leadership capabilities necessary for the competent practice of architecture and lifelong learning. (ETPR)

PEO4. Pursue advanced education, research and development, and other creative and innovative efforts in the field of Architecture. (SKILL)

### Program Outcomes (POs):

PO1. Ability to gain knowledge of Humanities, Sciences and Architecture and the application of knowledge in practice.

PO2. Use the elements of Architecture and apply basic principles in Architectural Design.

PO3. Ability to apply theoretical knowledge to achieve Architectural Design solutions.

PO4. Ability to research, review, comprehend and report technological developments happening in the field of Architecture.

PO5. To make the student design aesthetically pleasing, structurally viable buildings and encourage technological advancements in the building construction industry.

PO6. Ability to understand the real-life situation in converting the On-paper design to On-site design of Architectural Practice.

PO7. To make students understand the environmental issues and apply the knowledge for sustainable development



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- PO8. Recognize the ethical and professional responsibilities and the norms of Architectural practice.
- PO9. Identify and solve the social, economic, and cultural issues in Architectural Design.
- PO10. Communicate effectively and work in interdisciplinary groups according to the project scale.

### Program Specific Outcomes (PSOs):

PS01. Ability to enhance creative design skills in attaining design solutions in architecture.

PS02. To understand the design complexity of the designed structure and use appropriate building construction techniques and technology for the structure.

### MAPPING OF ACADEMIC GOALS WITH MISSION STATEMENTS:

Academic Goals	Mission Statements		
	M1	M2	M3
G1	✓		✓
G2		✓	✓
G3	✓		
G4		✓	✓
G5	✓		
G6			✓
G7		✓	



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## MAPPING OF PEO'S WITH ACADEMIC GOALS:

PEOs	ACADEMIC GOALS						
	G1	G2	G3	G4	G5	G6	G7
PEO1	✓			✓			✓
PEO2	✓	✓		✓		✓	✓
PEO3						✓	
PEO4	✓		✓		✓		

## MAPPING OF PEOS WITH MISSION STATEMENTS OF THE DEPARTMENT:

S.NO	Description of PEOs	Key Components of Mission			
		M 1	M 2	M 3	M 4
PEO 1	Should be able to stimulate artistic sensitivity and creative powers. (SKILL)	✓		✓	
PEO 2	Strengthen intellectual growth and the capacity to develop creative and responsible solutions to unique and changing problems. (EMPL)		✓		✓
PEO 3	Acquire leadership capabilities necessary for the competent practice of architecture and lifelong learning. (ETPR)	✓	✓	✓	✓
PEO 4	Pursue advanced education, research and development, and other creative and innovative efforts in the field of Architecture. (SKILL).	✓	✓	✓	✓



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### MAPPING OF POs/PSOs with PEOs:

S.NO	Key Components of POs and PSOs	Description of PEO			
		Should be able to stimulate artistic sensitivity and creative powers. (SKILL)	Strengthen intellectual growth and the capacity to develop creative and responsible solutions to unique and changing problems. (EMPL)	Acquire leadership capabilities necessary for the competent practice of architecture and lifelong learning. (ETPR)	Pursue advanced education, research and development, and other creative and innovative efforts in the field of Architecture. (SKILL).
		PEO1	PEO2	PEO3	PEO4
PO 1	Ability to gain knowledge of Humanities, Sciences and Architecture and the application of knowledge in practice.	✓	✓	✓	✓
PO 2	Use the elements of Architecture and apply basic principles in Architectural Design.	✓	✓	✓	✓
PO 3	Ability to apply theoretical knowledge	✓	✓	✓	✓



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	to achieve Architectural Design solutions.				
PO4	Ability to research, review, comprehend and report technological developments happening in the field of Architecture	✓		✓	✓
PO5	To make the student design aesthetically pleasing, structurally viable buildings and encourage technological advancements in the building construction industry.	✓	✓		✓
PO6	Ability to understand the real-life situation in converting the On-paper design to On-site design of Architectural Practice		✓	✓	
PO7	To make students understand the environmental issues and apply the knowledge for sustainable development		✓	✓	



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PO8	Recognize the ethical and professional responsibilities and the norms of Architectural practice.	✓	✓	✓	
PO9	Identify and solve the social, economic, and cultural issues in Architectural Design.	✓	✓		✓
PO10	Communicate effectively and work in interdisciplinary groups according to the project scale.			✓	✓
PSO1	Ability to enhance creative design skills in attaining design solutions in architecture.	✓		✓	
PSO2	To understand the design complexity of the designed structure and use appropriate building construction techniques and technology for the structure.		✓	✓	





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## THRUST AREAS OF ARCHITECTURE

LOCAL <i>AP URBAN</i>	REGIONAL <i>AP URBAN</i>	NATIONAL <i>Council of Architecture</i>	GLOBAL <i>UN Sustainable Development Goals</i>
Infrastructure Development	Housing	Design, Aesthetics	Urbanization
Sustainable Development with cultural aspect.	Energy efficient Infrastructure	Sustainable Development, Sustainable Construction	Sustainable Development
<a href="https://crda.ap.gov.in/APCRDADOC/S/GOSACTSRULES/Acts/01~0754CRDA%20Act.pdf">https://crda.ap.gov.in/APCRDADOC/S/GOSACTSRULES/Acts/01~0754CRDA%20Act.pdf</a>  • Chapter I, 2 (19), Pg.7  • Chapter III, 10(a) (II), Pg.22  Chapter III, 10(e) (XI), Pg.27	<a href="https://www.apurban.com/">https://www.apurban.com/</a>  • Under Economic cities  <a href="https://www.apurban.com/Documents/GOs/GO%20132.PDF">https://www.apurban.com/Documents/GOs/GO%20132.PDF</a>  • Broad Scope, Pg.2	<a href="https://www.coa.gov.in/showfile.php?lang=1&amp;level=1&amp;sublinkid=1023&amp;lid=893">https://www.coa.gov.in/showfile.php?lang=1&amp;level=1&amp;sublinkid=1023&amp;lid=893</a>  • Preface  <a href="https://www.teriin.org/eventdocs/files/sus_bldg_paper_1342567768.pdf">https://www.teriin.org/eventdocs/files/sus_bldg_paper_1342567768.pdf</a>	<a href="https://sdgs.un.org/goals">https://sdgs.un.org/goals</a>  Goal 11. Sustainable cities and communities





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### MAPPING OF NEEDS WITH MISSION STATEMENTS:

Local, Regional, National and Global Needs		Mission Statements			
		M1	M2	M3	M4
Local Needs	Infrastructure Development	✓	✓	✓	
	Sustainable Development with cultural aspect.	✓	✓	✓	
Regional Needs	Housing	✓	✓		
	Energy efficient Infrastructure	✓	✓		
National Needs	Design, Design Aesthetics	✓	✓	✓	✓
	Sustainable Development, Sustainable Construction	✓	✓	✓	✓
Global Needs	Urbanization	✓		✓	✓
	Sustainable Development	✓		✓	✓



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## COURSE OUTCOMES (COS) INTRODUCED / REVISED IN 2024-2025 CURRICULUM AS PER LOCAL, REGIONAL, NATIONAL AND GLOBAL NEEDS:

Local, Regional, National and Global Needs	Course Outcome (CO)	Course Title
-----------------------------------------------------------	---------------------	-----------------

Local Needs	Emerging technologies	An understanding of the qualities of different elements as well as their composite fusions	Architectural Design Studio – 1 (Basic Design And Visual arts): 24AR1153
		An ability to engage and combine the elements of design in spontaneous as well as intentional ways to create desired. qualities and effects	
		Development of required skills – observation / analysis / abstractions / interpretation / representations / expressions through models and drawings.	
		Understanding of 3D Composition by involving students in several exercises which will help generation of a form from a two dimensional / abstract idea.	
	Using local materials and construction techniques	Understanding of the building materials -Soils and Bricks	Building Materials and Construction - I (Masonry): 24AR1258
		Understanding of the building materials -stones & sand	
		Understanding of the building materials Lime and Cement	
		Understanding of the building materials-Timber & Bamboo	
	Appropriate material and techniques	To understand cutting and sticking for making a model	Model Making Workshop: 24AR1154
		To understand representing hills, Plateau, water bodies, furniture, Cars	
		To understand components of a detailed model	
		To know different materials and apply the acquired knowledge	
		To create model Independently by choosing appropriate material and techniques.	



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	Understanding local climate	An understanding of elements of climate, human comfort, and human body heat balance.	Climate Responsive Architecture: 22AR2109
		Understanding the concept of heat transfer in buildings, sun path diagrams and designing shading devices.	
		Understanding air movement for designing buildings accordingly.	
		Understanding climate responsive architecture through case studies.	
	Understanding local topography	Understanding Surveying using Chain and Compass.	Site Survey and Analysis: 23AR2110
		Understanding Surveying using Dumpy Level and Theodolite.	
		Understanding Surveying using Total Station and Alidade.	
		Applying survey practices in field	
	Community and identity	To understand the Vernacular Architecture, its Approaches & Concepts.	Vernacular Architecture: 23AR3120 A
		To Understand the Vernacular styles of Buildings in Western, Northern & North-Eastern India.	
		To Understand the Vernacular Architectural Styles of Southern India.	
		To study and Understand the Influence of Western world on Vernacular Architecture.	
Regional Needs	Emerging technologies	To Understand the Fundamentals of Drawing and Drafting	Architectural Design Studio – I (Basic Design And Visual arts): 24AR1153
		To Understand the Construction and Development of Surfaces for various Basic 3D Shapes.	
		To Understand the representation of various building component and related elements	
		To Understand the representation of a building in plan, elevation & sections.	
	Materials construction techniques and	Understanding the building materials -Ferrous & Nonferrous metals	Building Material and Construction – II: 24AR2160
		Understanding of the building materials – Cement mortar and concrete & Reinforced cement concrete.	
		Understanding of the building material - Glass.	
		Understanding of the building material - Paints.	
	Aesthetics and ergonomics	To understand the basic design a cumen and anthropometry, ergonomics	Interior Design Studio: 23AR4118 A
		To enhance their skills by applying design on cept and theme for Small spaces.	



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		Apply the skills in Planning of residential spaces with material usage understanding	
		Apply anthropometry in hospitality related environment.	
	Aesthetics	To Understand the concepts and Scientific Methods of Perspective Drawing and apply Rendering Techniques	Architectural Drawing - II (3D forms and colour): 24AR1255
		To understand the principles of Shade & Shadow and Construct Sciography of Architectural Structures.	
		To Understand identification and measuring of specific Architectural Details of Historically significant Buildings.	
		To understand the presentation techniques of drawings	
	Aesthetics and ergonomics	0	Furniture Design Studio: 23AR4118 B
		To enhance their skills by applying design concept and theme to Human scale	
		Apply the skills in Planning of furniture with material usage understanding	
		Study and apply anthropometry in daily use products.	
National Needs	Understanding the climate and environment	Define to articulate basic understanding of the importance of Environmental education and conservation of natural resources. conservation of natural resources and Energy resources.	Ecology & Environment: 22UC0009
		Understand concepts of ecosystems and learn methods for conservation of habitats and biodiversity.	
		Identify critically about individual roles in prevention of pollution. An Environmental Studies will be enabled to do independent research on human interactions with the environment.	
		Recognize the knowledge on environmental legislation, disaster management and EIA process.	
	Indian Knowledge System	To understand Vedic culture and study the origins of Early Hinduism, Jainism, Buddhism, and its rudimentary forms of construction.	History of Architecture - II (Hindu Architecture: 22AR1205
		To understand Hindu forms of worship, concept, symbolism and to get knowledge on the metaphysical plan of Temple Architecture.	
		To understand and to get knowledge on the temple architecture and temple towns during various periods and empires in South India and North India.	
		To Study and to know the character and Architecture of temples of South India and North	



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		India in detail.	
	Comfort	<p>To make student to remember anthropometric data, conduct desktop/case study and understand collected data towards framing parameters for bedroom design.</p> <p>To make student to apply and analyze collected data, to derive concepts, evaluate schematic preliminary design options, and final design presentation of a Bedroom for a cine actor.</p> <p>To make student to remember anthropometric data, conduct desktop/casestudyandunderstandcollecteddatatowardsframingparametersfor Coffee Shop design.</p> <p>To make students to derive concepts, schematic preliminary design, and final design presentation of a Shop front for a given context.</p>	Architectural Design Studio -II: 23AR1256
	Materials construction techniques.	<p>to understand natural materials like stone used in the building construction, method of construction and its application &amp; usage in building industry &amp; types of masonry, it's systems &amp; techniques.</p> <p>To understand the brick as basic building material &amp; application of clay products in construction sector, methods &amp; techniques.</p> <p>To understand the basic building components of the building i.e.: Foundation to parapet wall. To study the elements of the building and their importance, to understand the sequences of construction &amp; structural system.</p> <p>Students should be able to analyze the different types of brick masonry &amp; construction methods and details of contemporary and traditional work method demonstrate the techniques through study models</p>	Building Materials and Construction - I (Masonry): 24AR1258
	Understanding of people's spatial need	<p>To understand and analyze the use, the spaces, and the concepts of residential activities.</p> <p>To design a small-scale residential project</p> <p>To understand and analyze the spaces, connectivity, and the standards of Institution buildings. To design an institution-oriented building</p> <p>Time Problem design with minimal design agenda</p>	Architectural Design Studio -III: 23AR2159
	Technology and comfort	<p>To know about the water treatment, distribution, and wastewater treatment methods &amp; disposal.</p> <p>Understanding the building sanitation method and different types of plumbing systems</p> <p>To understand the layouts and sanitary layouts of a residence.</p>	Building Services - I (Plumbing and sanitation): 22AR2212





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		To understand the use and installation of various plumbing fixtures and to know the sewerage systems for sanitary conveyance.	
	Materials and construction techniques.	To understand the construction of doors and windows in accordance with the type of usage.	Building Material and Construction - II
		To understand the uses of wooden trusses and staircases in construction industry/practice	24AR2160
		To understand the installation of Paneling, soundproof and light weight partitions	
		To understand the techniques of bamboo constructions and the construction techniques of wall and kitchen cabinets	
	Liveable cities	Fundamentals of Sustainability and its impact on Environment	Sustainable Architecture: 23AR3120 B
		Understanding the new concepts and terminologies of sustainability	
		Understand the importance of site planning and energy, water efficient landscaping as an important tool in sustainable architecture	
		National and International Case studies of Sustainable Architecture through research summary	
	Location and topography	To make students understand about the basics of site, it's measuring and drawing methodologies.	Site Analysis and Planning: 22AR2213
		To explain the importance of analysis of a site required in architectural design and building construction.	
		To make students understand the context of the site with respective to the surrounding land use typology.	
		To discuss about the site planning techniques and layout principles to be followed prior to site designing.	
	Understanding of people's spatial need	To memorize anthropometry, circulation patterns, standards various Facilities to be provided.	Architectural Design Studio -IV: 23AR2261
		To create and design spatial planning, circulation, and functionally.	
		Good community oriented open spaces- <b>Project 1</b>	
		To Create and design functional and activity-oriented community spaces- <b>Project2</b>	
		To analyze the architecture, rural planning, infrastructure, and settlement planning of a village (rural settlement). To document the observations and compile the analysis for presentation – <b>Project 3.</b>	
	Culture and people	Understand the Evolution of Dwellings as base of Traditional and Vernacular styles of India.	Contemporary



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		Understand the Architecture and Planning of various Cities during Medieval Age.	Architecture: 23AR2214
		Understand the Culture and Built Forms in Pre – Independence (Colonial Rule) and Post-Independence of India.	
		Understand the Theories of current Architect practices and their applicability in meeting present day Needs.	
	Technology and comfort	Study of electricity, installations, wiring and principles of distribution and safety	Building Services - II : 23AR3116
		Know the application of artificial illumination, and lighting design for various spaces	
		Knowledge of ventilation principles	
		Understanding properties of sound and Architectural acoustics, analyzing acoustic concepts and design, and learning how to create acoustics.	
	materials and construction techniques.	Study of electricity, installations, wiring and principles of distribution and safety	Building Material and Construction – III: 24AR2263
		Know the application of artificial illumination, and lighting design for various spaces	
		Knowledge of ventilation principles	
		Understanding properties of sound and Architectural acoustics, analyzing acoustic concepts and design, and learning how to create acoustics.	
	Technology and Innovation	To understand and analyse the use, the spaces, and the concepts of different homes for the disabled.	Architectural Design Studio -V: 23AR3164
		To design a Social oriented building –A Home for physically and mentally challenged- <b>Project1</b>	
		To understand and analyze the spaces, connectivity, and the standards of Institution buildings.	
		To design an institution-oriented building – School of Architecture - Project 2 Time Problem - To design an Art center/ Museum	
	Technology and comfort	An understanding of the Thermal Properties of the building material and components and mechanical ventilation	Building services – III: 23AR3221
		Understand the principles, systems, and design criteria of HVAC.	
		Gain knowledge about fire safety norms in the buildings.	
		Understand the mechanical transportation systems in buildings	
	Materials and construction techniques.	Understanding of Cement and Concrete properties.	Building Material and Construction – IV:
		Understanding of Special concrete and Concreting methods.	
		Understanding of the Reinforced Cement Concrete Construction.	





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		Understanding of Advanced Application Reinforced Cement Concrete Construction.	24AR3166
	Improved transparency in the construction industry	An understanding of data required and methods of estimation	Specification, Estimation and Costing: 24AR3222
		Ability to estimate various quantities using different methods	
		An understanding of the types of estimates and costing	
		Knowledge of various specifications and terminology used.	
	Liveability and sustainability	Develop an understanding about space design at local level	Landscape Design Studio: 23AR3224 A
		Develop a skill to integrate various knowledge systems to arrive at a design proposal of an urban scale, the process used for the same	
		Make the students understand the area, scale, design, and implementation factors with the involvement of stakeholders	
		Make the students work on relatively large project for incorporating multidisciplinary domains in the projects for consideration of the same.	
	Cost effective	Develop an understanding about space design at local level	Modular Construction Studio: 23AR3224 B
		Develop integrate various knowledge systems to arrive at a design proposal of a practical scale, the process used for the same	
	Technology and Innovation	Make the students understand the area, scale, design, and implementation factors with the involvement of Modular construction	Architectural Design Studio -VI: 23AR3267
		Make the students work on a project for incorporating Modular construction	
		Expose the students to the challenges of designing functionally complicated buildings, having a complex array of activities and services	
		Design a functionally complex Building (Medium Rise Structure) - <b>PROJECT 1</b>	
		Familiarize the students to the task of coordinating integration of structural design and specialized building services in the framework of architectural design	
		Make students understand advanced construction technology and newer building materials. To Design a functionally complex Building (High Rise Structure) -	



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		<b>PROJECT 2</b>	
	Technology and Innovation	Familiarity with the alternative building materials, applying cost. effective materials and techniques to resolve environmental problems. Familiarity with indigenous construction materials and techniques for building resilience and disaster mitigation Familiarity with the material and techniques for energy efficient building construction Introduction to Building Information Modelling and application of the same in modern construction industry	Appropriate Construction Technologies: 23AR3225 A
	Productivity	Integrated perspective on role of HRM in modern business. Ability to plan human resources and implement techniques of job design Competency to recruit, train, and appraise the performance of employees Rational design of compensation and salary administration Ability to handle employee issues and evaluate the new trends in HRM	
	Technology and comfort	Understand the philosophy of building automation systems and subsystems Learn about the communication and security systems Learn about the integration of building services into architectural design Learn about the Interaction and integration between building structure, systems, services, management, control, and information technology.	Building Services - IV: 23AR4126
0	Economic development	Understand housing and Housing issues Understand Housing, 5-year plans specific to housing Understand Critical Sources of Finance Understand Planning – Physical, Administration, Socio-Cultural, Sustainable, Financial, Future forecasts, and trends	Housing: 23AR4128 A
	Technology and Innovation	Memorize anthropometry, circulation patterns, importance of services and building techniques To understand and apply the integration of services into intelligent sustainable building case study To Create and design spatial planning and functionality in Low. Rise – High Density Project. (Project 1) To analyze the spaces, connectivity, and the standards of sustainable and service intensive	Architectural Design Studio - VII: 23AR4168



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		building. Case study. To create design of a sustainable service integrated intelligent. green building in High Rise – High Density Project. (Project 2)	
	Cultural promotion	Understand the Background writing and Concept creation for PLAY. Study the Technology and concepts involved in Film set design. Study and making of Background set to resemble the feature, Variation nasality in Lay outing Set Produce a Mock model on Concept allotted and study Lighting and prop Installations.	Set Design: 23AR3229 B
	Enhanced documentation	Introduce Working drawings and their significance in the construction of buildings. Teach students the essential components of working drawings, notations, drawing standards, Strengthen the students' knowledge about preparing working drawings for various building elements. Improve the construction details knowledge.	Working drawing I: 23AR4130
	Improved efficiency	Understand the Objectives and Methods of project Management System Understand various Tools and Techniques to facilitate efficient management of Projects Analyze Project cost model and steps involved in cost optimization Applying Scientific Evaluation Techniques to Manage Project Durations and resources with Examples	Building Construction and Management: 22AR4232
	The development of the Smart Cities Mission	Memorize Urban Design terminologies Understand Users and Activities in a city Understand public spaces, streets & Transport Understand Application of Urban Design	Urban Design: 23AR4233 A
	Promoting sustainable transportation options:	Study the Basic elements and various category of vehicles depending upon the category of Roads exiting Understanding Various types of Circulation & Users along with their infrastructural needs. Understanding Road Safety & Civic Sense Understanding Traffic & Transportation byelaws & Regulation	Transportation Planning: 23AR4234 A
	Smart city Mission	Understand the role of Services at higher scale in Urban level Understand and apply the integration of services into intelligent sustainable building case study	Urban Design Studio: 23AR4270



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		Create High Density Urban facility as a solution to the Urban area problems, Current issues. (Project-1)	
		Analyze the spaces, Transformation according lifestyle changes in Urban population, connectivity, and the standards of sustainable and service intensive building. Case study. Create design of a sustainable service integrated intelligent green building High Density Project. (Project 2)	
	Reduced loss of life	Understand the necessity for disaster management and measures that are to be followed. Study the Disaster preparedness and Involving Design Considerations for buildings Study the Design considerations for Disaster management and precautions. Understand the Relief & Rehabilitation for Disasters	(Disaster Mitigation and Managemen t: 23AR4234 B
	Enhanced documentation	Train the students to prepare detailed Working drawings for effective execution at construction site. Teach students the essential components of working drawings, notations, drawing standards, Preparation of integrated services drawings and detailing for various types of drawings and methods of transmittals and record keeping. Update the latest materials knowledge with specifications	Working drawing II: 23AR4271
	Improved job prospects	Understand the preparation of professional architectural portfolio and resume Apply Academic architectural skills in various projects while working in office Evaluate attributes of project, based on discussions with Chief Architect and clients. Site supervision during execution and coordination with the agencies involved in the construction process.	Practical Training: 23AR5172
	Entrepreneurship	Expose students to the daily realities of an architectural practice through the Training Facilitate an understanding of the evolution of an architectural project from design to execution. Enable an orientation that would include the process of development of conceptual ideas, presentation skills. Involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure.	Architecture e Professional Practice: 22AR5235
	Dissemination of knowledge	Understanding the Architectural Thesis, Writing Synopsis, Studies Related to Project. Literature study in relation to literatures, Desktop	Architectural Thesis: 23AR5273



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		Studies, Case studies.	
		Site Study, Application of Data & Information Collected regarding project topic, Preliminary Drawings production.	
		Creation of final Viable drawings & Building Services, Physical & Virtual Model and Report making.	
Global Needs	Culturally sensitive architecture	Introduction to Architecture and basic understanding of space and form development.	Theory of Architecture: 22AR1101
		To learn the components of building circulation and its relation to architecture.	
		An understanding on architectural aesthetics in designing a building & also understand the key role of principles applied in Architecture.	
		Students should understand the functioning of design process and its application in architectural buildings through case studies.	
	Culturally sensitive architecture	To Understand Primitive Architecture and Ancient Settlements in pre-Historic times and get knowledge on the Ancient River valley civilizations in the world.	History of Architecture - I (Ancient Civilization): 22AR1102
		Understand the Architecture and Planning of Ancient River Valley Civilizations	
		Understand the Culture and its influence on Architecture in Ancient Greece and Ancient Rome and its impact on Western Architecture.	
		To study the Built forms in Ancient Greece and Ancient Roman Empire and its monumental Urban Architecture	
	Aesthetics	To understand the Types, Properties and Application of Colours.	Architectural Design Studio 24AR1153
		To understand the Painting Variations.	
		To understand the Technique of Sculpturing.	
		To explore and apply the Techniques of Sculpturing	
	Emerging technologies.	Familiarize the students about the architecture and structural engineering interface. Understanding the concept of forces and structural systems.	Design of Structure: 23AR1204
		Analysing the plane trusses	
		Understanding of shear force and bending moments in column.	
		Determination of deflection of beams	
	Emerging	Understanding of centre of gravity and moments of inertia and its impact on the structures.	Design of
		Understanding the concept of simple stresses and	





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	technologies.	strains and elastic properties of solids	Structures – II: 23AR2107
		Understanding the properties of structural timber and bamboo	
		Design of flexure members of timber and design of simple truss.	
	Culturally responsive	Understanding the evolution of early Christian and Medieval periods, its Architecture and socio-political changes.	History of Architecture - III 22AR2108
		Renaissance and Mannerist Architectures and their practices in Europe, growth of nations and styles of Baroque and Rococo.	
		Understanding the Islamic principles, philosophy, & its relevance to various built forms, and the influence of Islamic architecture on Indian subcontinent. Architecture of various provinces under sultanate rule.	
		Study of Architectural developments during Mughal Dynasty, Study of cross culture influence and evolution of secular architecture in princely states	
	Emerging technologies.	To understand the basics of computer system and their supporting technologies like MS Office..	Computer Studio - I (MS office, AutoCAD 3D)– I: 23AR2157
		To create documentation reports, analysis reports, and audio-visual presentations.	
		To reciprocate the tools of 2D visualization to create architectural drawings.	
		To create layouts, plot/print to scale drawings, design and edit 2D graphic images.	
	Ideas and Innovation	Understand the importance of Design thinking mindset for identifying contextualized problems	Design Thinking and Innovation : 24UC1203
		Analyse the problem statement by empathizing with user	
		Develop ideation and test the prototypes made	
		Explore the fundamentals of entrepreneurship skills for transforming the challenge into an opportunity	
	Emerging technologies.	Understanding of Basics of RCC design	Design of Structure – I: 23AR1204
		Understanding and designing of columns	
		Understanding and designing of footings and staircases	
		Understanding and analysis a given section for under or over design and load carrying capacity	
	Emerging	To learn the use of image editing software	Computer



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	technologies.	To create images and animation using graphics and animation software	Studio - II (Image making and 3d making software): 23AR2262
		To understand, visualize the space and apply the tools of sketch up or equivalent software	
		To create a detailed 3D model by working in collaboration by application of advanced tools	
	Emerging technologies.	Understanding of limit state design.	Design of Structures – II: 23AR2107
		Analysis and Design of reinforcement for a section	
		Design & detailing of one way and two-way slab.	
	Global culture and people	Detailing for special structures such as deep beams, corbels, shear walls etc.	
		Understand Cubism& Constructivism along with various Building styles of Early Modern Architects.	Contemporary Architecture: 23AR2214
		Understand Post Modernism and International Style along with Ideas and Works of Various Architects of that time.	
	Liveability	Understand Critical Regionalism and other alternative practices. along with Ideas and Works of Various Architects of that time.	
		Understand Deconstructivism along with Forms, Ideas and Concepts followed by Various Architects in their works.	Human Settlements and Planning: 23AR2223
		Understand the various elements of Human Settlements and the classification of Human Settlements.	
		Understand familiarize the students with Planning concepts and process in Urban and Regional Planning.	
	Sustainability	Understand the changing dynamics of Urban Form and it's planning according to urban transformation	
		Understand the interrelationship between Human Settlements structure and Social Dynamics.	
		To understand the importance of energy efficiency in buildings and strategies involved.	Sustainable Architecture: 23AR3120 B
		To understand the importance of relevance of water in built environment	
		Introduction to green rating systems and building codes	
		Introduction to simulation and analysis software	
	Technology and Innovation	Familiarity with the advanced construction techniques in RCC and their adaptability to architecture	Appropriate Construction Technology
		Understand and apply various pre-engineered Concrete structures, adaptation in large-span	





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		structures, pre-engineered Steel structures, adaptation in steel frames/space frames and their components.	es: 23AR3225 A
		Understand and apply different aspects and technologies. involved in the construction of High-rise buildings	
		Introduction to advanced building materials and their application in the contemporary architectural practice	
	Documentation	Familiarity with the photographic knowledge and equipment	Architectural
		Familiarity with photojournalism and visual communication techniques	Photography:
		Application of photographic equipment and techniques	23AR4128 B
		Creating visuals for buildings of architectural importance	
	Increased efficiency and sustainability	Understand intelligent buildings' concept and its evolution	Energy Efficient
		Understand energy management systems and indoor environment quality of buildings	Architecture
		Understand energy conservation technology in buildings and its application	23AR3225 B
		Understand and apply building management systems	
	Cultural heritage values	Make students understand about the basics of Conservation in India.	Architectural
		Study the Conservation Practices.	Conservation:
		Explain the importance & analysis of Urban Conservation	23AR3229 A
		Discuss about Conservation planning & Adaptive Conservation.	
	Advancement of knowledge	Understand the importance of reasoning	Dissertation:
		Select the topic which may eventually culminate in the Architectural Design Thesis in the subsequent semester.	23AR4269 A
		Select and apply the concept of reasoning to the chosen topic	
		Analyze the spaces, connectivity, and the standards of sustainable and service intensive building. Case study	
		Write a report on the research done in the topic with appropriate studies.	
	Advancement of knowledge	Students will explore and research topics of their interest; then organize presentations.	Thesis Seminar:
		To help students improve as speakers. All enrolled students must be present at each seminar. It is expected that students will actively participate by	23AR4269 B



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		<p>asking questions of the speaker.</p> <p>The seminar process includes topic selection, synopsis submission, research on the topic and finally a presentation. Students can take aid of various mediums of visual presentation ranging from Power points to films to working models to best explain their topic.</p> <p>Each student will give two 20-minute presentations. The student's seminar should cover a minimum of four related papers in the topic chosen.</p>	
	Improved health	<p>Identify concepts and concerns of perception. Identify and develop the sensitivity to the needs of users and clients</p>	<p>Behavioral Architecture: 23AR4233A</p>

### Distribution of Credits

Sl No	Course Category	Short Name	No. Of courses	Minimum Credits	Contact Hours	As per COA Credits	As per ABET Credit Hours (if applicable)
1	Basic Sciences and Applied Engineering	BSAE	16	51	53	20	NA
2	Professional Core Courses	PCC	12	34	34	130	NA
3	Professional Core (PRI)	PC (PRI)	10	98	98	Part of PC	
4	Professional Electives Courses	PEC	18	27	27	26	NA
6	Open Electives Course	OEC	1	3	3	5	NA
7	Professional Ability Enhancement Compulsory courses	PAECC	3	36	36	26	NA
8	Skill Enhancement Courses	SEC	4	13	13	13	NA
9	Humanities, Art & Social Sciences	HAS	4	9	14	NA	



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Total	59	270	274	260	NA
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## Course structure (category wise)

### PROFESSIONAL CORE COURSES (PCC)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
1	22AR1101	THEORY OF ARCHITECTURE	3	0	0	0	0	0	3	3	Nil
2	22AR1102	HISTORY OF ARCHITECTURE - I (ANCIENT CIVILIZATION)	3	0	0	0	0	0	3	3	Nil
3	24AR1152	ARCHITECTURAL DRAWING - I (BASIC GEOMETRY)	0	0	3	0	0	0	3	3	Nil
4	24AR1154	MODEL MAKING WORKSHOP	0	0	4	0	0	0	4	4	Nil
5	22AR1205	HISTORY OF ARCHITECTURE - II (HINDU ARCHITECTURE)	3	0	0	0	0	0	3	3	Nil
6	24AR1255	ARCHITECTURAL DRAWING - II (3D FORMS AND COLOUR)	0	0	3	0	0	0	3	3	Nil
7	22AR2108	HISTORY OF ARCHITECTURE - III (MEDIEVAL ARCHITECTURE)	3	0	0	0	0	0	3	3	Nil
8	22AR2213	SITE ANALYSIS AND PLANNING	2	0	0	0	0	0	2	2	Nil
9	23AR2214	CONTEMPORARY ARCHITECTURE	3	0	0	0	0	0	3	3	Nil
10	23AR2223	HUMAN SETTLEMENTS AND PLANNING	2	0	0	0	0	0	2	2	Nil
11	23AR3117	BUILDING BYE LAWS AND OFFICE MANAGEMENT	2	0	0	0	0	0	2	2	Nil



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12	23AR3222	SPECIFICATION, ESTIMATION AND COSTING	3	0	0	0	0	0	0	3	3	Nil
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## BASIC SCIENCES AND APPLIED ENGINEERING (BSAE)

Sn o	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
1	22UC0009	ECOLOGY & ENVIRONMENT	0	0	0	0	2	0	0	0	Nil
2	23AR1204	DESIGN OF STRUCTURES - I (PLANE TRUSSES, SHEAR FORCE AND BENDING MOMENTS)	3	0	0	0	0	0	3	3	Nil
3	24AR1258	BUILDING MATERIALS AND CONSTRUCTION - I (MASONRY)	0	0	4	0	0	0	4	4	Nil
4	23AR2107	DESIGN OF STRUCTURES - II (DESIGN OF BEAMS AND COLUMNS)	3	0	0	0	0	0	3	3	Nil
5	22AR2109	CLIMATE RESPONSIVE ARCHITECTURE	3	0	0	0	0	0	3	3	Nil
6	24AR2160	BUILDING MATERIALS AND CONSTRUCTION - II (JOINERY, TRUSSES, AND ROOF)	0	0	4	0	0	0	4	4	Nil
7	23AR2211	DESIGN OF STRUCTURES - III (DESIGN OF FOOTINGS)	3	0	0	0	0	0	3	3	Nil
8	22AR2212	BUILDING SERVICES - I (PLUMBING AND SANITATION)	3	0	0	0	0	0	3	3	Nil
9	24AR2263	BUILDING MATERIALS AND CONSTRUCTION - III (STAIRCASE, FLOOR, ADVANCE ROOFING)	0	0	4	0	0	0	4	4	Nil
10	23AR3115	DESIGN OF STRUCTURES - IV (DETAILING OF STRUCTURAL MEMBER)	3	0	0	0	0	0	3	3	Nil
11	23AR3116	BUILDING SERVICES - II (ELECTRICAL, AND ACOUSTICS)	3	0	0	0	0	0	3	3	Nil
12	24AR3166	BUILDING MATERIAL AND CONSTRUCTION - IV (PARTITION, FALSE CEILING AND FALSE FLOORING)	0	0	4	0	0	0	4	4	Nil



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13	23AR3221	BUILDING SERVICES - III (HVAC AND FIRE SAFETY)	3	0	0	0	0	0	3	3	Nil
14	23AR4126	BUILDING SERVICES - IV (BUILDING AUTOMATION)	3	0	0	0	0	0	3	3	Nil
15	23AR4130	WORKING DRAWING - I (BUILDING STRUCTURE, CIVIL AND MASONRY)	0	0	4	0	0	0	4	4	Nil
16	23AR4271	WORKING DRAWING - II (DETAILING)	0	0	4	0	0	0	4	4	Nil

### PROFESSIONAL CORE (PRI) – PC(PRI)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
1	24AR1153	ARCHITECTURAL DESIGN STUDIO -I	0	0	9	0	0	0	9	9	Nil
2	23AR1256	ARCHITECTURAL DESIGN STUDIO -II	0	0	9	0	0	0	9	9	24AR1153
3	23AR2159	ARCHITECTURAL DESIGN STUDIO -III	0	0	9	0	0	0	9	9	24AR1256
4	23AR2261	ARCHITECTURAL DESIGN STUDIO -IV	0	0	9	0	0	0	9	9	24AR2159
5	23AR3164	ARCHITECTURAL DESIGN STUDIO -V	0	0	9	0	0	0	9	9	24AR2261
6	23AR3267	ARCHITECTURAL DESIGN STUDIO -VI	0	0	12	0	0		12	12	24AR3164
7	23AR4168	ARCHITECTURAL DESIGN STUDIO -VII	0	0	12	0	0	0	12	12	24AR3267
8	23AR4131	RESEARCH METHODOLOGY	2	0	0	0	0	0	2	2	Nil
9	23AR4270	URBAN DESIGN STUDIO	0	0	12	0	0	0	12	12	24AR4168
10	23AR5273	ARCHITECTURAL THESIS	0	0	15	0	0	0	15	15	24AR5172

### PROFESSIONAL ELECTIVE COURSES (PEC)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
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1	23AR3120A	PE-1 (VERNACULAR ARCHITECTURE)	3	0	0	0	0	0	3	3	Nil
2	23AR3120B	PE-1 (SUSTAINABLE ARCHITECTURE)									
3	23AR3224A	PE-2 (LANDSCAPE DESIGN STUDIO)	0	0	4	0	0	0	4	4	Nil
4	23AR3224B	PE-2 (MODULAR CONSTRUCTION STUDIO)									
5	23AR3225A	PE-3 (APPROPRIATE CONSTRUCTION TECHNOLOGIES)	2	0	0	0	0	0	2	2	Nil
6	23AR3225B	PE-3 (ENERGY EFFICIENT BUILDING)									
7	23AR3229A	PE-4 (ARCHITECTURAL CONSERVATION)	3	0	0	0	0	0	3	3	Nil
8	23AR3229B	PE-4 (SET DESIGN)									
9	23AR4128A	PE5 (HOUSING)	2	0	0	0	0	0	2	2	Nil
10	23AR4128B	PE5 (ARCHITECTURE PHOTOGRAPHY)									
11	24AR3118A	PE-6 (INTERIOR DESIGN STUDIO)	0	0	4	0	0	0	4	4	Nil
12	23AR3118B	PE6 (FURNITURE DESIGN STUDIO)									
13	23AR4269A	PE7 (DISSERTATION)	0	0	4	0	0	0	4	4	Nil
14	23AR4269B	PE7 (THESIS SEMINAR)									
15	23AR4233A	PE 8 (URBAN DESIGN)	2	0	0	0	0	0	2	2	Nil
16	23AR4233B	PE8 (BEHAVIORAL ARCHITECTURE)									
17	23AR4234A	PE 9 (TRANSPORTATION PLANNING)	3	0	0	0	0	0	3	3	Nil
18	23AR4234B	PE9 (DISASTER MITIGATION AND MANAGEMENT)									

## SKILL ENHANCEMENT COURSES (SEC)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
1	23AR2110	SITE SURVEY AND ANALYSIS	0	0	0	3	0	0	3	3	Nil
2	23AR2157	COMPUTER STUDIO - I (MS OFFICE, AUTOCAD 3D)	0	0	0	3	0	0	3	3	Nil
3	23AR2262	COMPUTER STUDIO - II (IMAGE MAKING AND 3D MAKING SOFTWARE)	0	0	0	3	0	0	3	3	Nil





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4	23AR3165	COMPUTER STUDIO - III (BUILDING INFORMATION MODELLING)	0	0	0	4	0	0	4	4	Nil
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## PROFESSIONAL ABILITY ENHANCEMENT COMPULSORY COURSES (PAECC)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
1	22AR4232	BUILDING CONSTRUCTION AND MANAGEMENT	3	0	0	0	0	0	3	3	Nil
2	23AR5172	PRACTICAL TRAINING / INTERNSHIP	0	0	30	0	0	0	30	30	24AR4270
3	22AR5235	ARCHITECTURE PROFESSIONAL PRACTICE	3	0	0	0	0	0	3	3	Nil

## HUMANITIES ART AND SOCIAL SCIENCE (HAS)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
1	24UC1103	LANGUAGE SKILLS	2	0	2	0	0	0	4	3	Nil
2	23UC0026	HUMAN VALUES, GENDER EQUALITY AND PROFESSIONAL ETHICS	0	0	0	0	4	0	0	2	NIL
3	24UC1203	DESIGN THINKING AND INNOVATION	2	0	2	0	0	0	4	3	Nil
4	24UC1205	COMMUNICATION SKILLS	2	0	2	0	0	0	4	3	Nil

## OPEN ELECTIVE COURSES (OPE)

Sno	Course Code	Course Name	L	T	P	S	I	N	Ch	Cr	Prerequisites
23FL305 4	OPEN ELECTIVE -1 FOREIGN LANGUAGE (FRENCH)	OEC	OE-1	3	0	0	0				
23FL305 5	OPEN ELECTIVE -1 FOREIGN LANGUAGE (GERMAN)		OE-1	3	0	0	0				
23FL305 8	OPEN ELECTIVE -1 FOREIGN LANGUAGE (JAPANESE)		OE-1	3	0	0	0				





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### Program Structure

Detailed structure of the program highlighting all the courses and their credits

S. No	Course code	Course name	Course Category	Sub Category	L	T	P	S	C	Ch	Pre requisites	New course/ revised course/ retained course	Stakeholder feedback based on which change was proposed	Focused on employability/ entrepreneurship/ skill development	Justification (Detailed Justification on how the course content maps to employability/entrepreneurship/skill category.)
1	22AR1101	THEORY OF ARCHITECTURE	PCC	PCC-CORE	3	0	0	0	3	3	Nil	Retained course	-	Employability	Provides the foundation for creative problem-solving and critical thinking, essential skills for success in any architecture-related field.
2	22AR1102	HISTORY OF ARCHITECTURE - I (ANCIENT CIVILIZATION)	PCC	PCC-CORE	3	0	0	0	3	3	Nil	Retained course	-	Employability	Understanding historical design principles informs creative solutions and refines critical thinking for various architecture-related fields.
3	24AR1152	ARCHITECTURAL DRAWING - I (BASIC GEOMETRY)	PCC	PCC-CORE	0	0	3	0	3	3	Nil	Revised course	As per feedback, the credits are changed	Skill development	It lays the foundation for spatial reasoning and technical skills essential for architectural design.
4	24UC1103	LANGUAGE SKILLS	HAS	HAS-CORE	0	0	4	0	2	4	Nil	Revised course	University	Skill development	-
5	24AR1153	ARCHITECTURAL DESIGN STUDIO - I	PRI	PRI-CORE	0	0	9	0	9	9	Nil	Revised course	As per Preethi, Academic peer Feedback -	Entrepreneurship	It can equip students with the creative problem-solving and project management skills necessary for entrepreneurial ventures in the built environment.



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													Art and Visual Graphics and Basic Design can be merged together..		
6	24AR1154	MODEL MAKING WORKSHOP	PCC	PCC-COR E	0	0	4	0	4	4	Nil	Revised course	Changed the offering sem due to CH distribution	Skill development	It directly develop practical skills in design, construction, and problem-solving.
7	22UC009	ECOLOGY & ENVIRONMENT	BSAE	BSAE - COR E	2	0	0	0	0	2	Nil	Retained course	University	Employability	To inculcate Independent learning skills to the students and also to bring awareness on Environment and Ecology.
8	24UC1203	DESIGN THINKING AND INNOVATION	HAS	HAS - COR E	2	0	2	0	3	4	Nil	Revised course	University	Employability	-
9	23AR1204	DESIGN OF STRUCTURES - I (PLANE TRUSSES, SHEAR FORCE AND BENDING MOMENTS)	BSAE	BSAE - COR E	3	0	0	0	3	3	Nil	Retained course	-	Employability	It equips you with the foundational knowledge to analyze and design structures, a skill highly sought after in the construction industry.
10	22AR1205	HISTORY OF ARCHITECTURE - II (HINDU ARCHITECTURE)	PCC	PCC-COR E	3	0	0	0	3	3	Nil	Retained course	-	Employability	Understanding Hindu Architecture's rich history and symbolism can enhance design skills for projects inspired by or catering to Indian cultural contexts.
11	24AR1255	ARCHITECTURAL DRAWING - II (3D FORMS AND COLOUR)	PCC	PCC-COR E	0	0	3	0	3	3	Nil	Revised course	As per feedback, the credits are changed	Skill development	It develops spatial visualization skills, which are valuable in many fields.
12	23AR1256	ARCHITECTURAL DESIGN STUDIO -II	PRI	PRI-COR E	0	0	9	0	9	9	24AR1153	Retained course	-	Entrepreneurship	It can equip students with the creative problem-solving and project management skills necessary for entrepreneurial ventures in the built environment.



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13	24AR1 258	BUILDING MATERIALS AND CONSTRUCTI ON - I (MASONRY)	BSAE	BSAE - COR E	0	0	4	0	4	4	Nil	New cour se	As per Industri al Expert Ar. Asish, the course s are merge d and new syllabu s is propose d.	Employabil ity	It equips you with the skills to build structures with brick and stone, a valuable foundation for a career in construction.
14	24UC2 105	COMMUNICA TION SKILLS	HAS	HAS - COR E	0	0	4	0	2	4	Nil	Revi sed cour se	Univer sity	Skill developme nt	-
15	23AR2 107	DESIGN OF STRUCTURE S - II (DESIGN OF BEAMS AND COLUMNS)	BSAE	BSAE - COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	Mastering the design of beams and columns, the building blocks of structures, strengthens your skill set for employment in civil and structural engineering fields.
16	22AR2 109	CLIMATE RESPONSIVE ARCHITECTU RE	BSAE	BSAE - COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	These skills are increasingly sought after as sustainable design becomes a major focus in the construction industry.
17	22AR2 108	HISTORY OF ARCHITECTU RE- III (MEDIVIAL ARCHITECTU RE)	PCC	PCC- COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	Understanding Medieval Architecture's rich history and symbolism can enhance design skills for projects inspired by or catering to around the world contexts.
18	23AR2 110	SITE SURVEY AND ANALYSIS	SEC	SEC- COR E	0	0	0	3	3	3	Nil	Reta ined cour se	-	Skill developme nt	These informations are targeted skill development by revealing the specific technical demands and physical environment workers encounter.
19	23AR2 157	COMPUTER STUDIO - I (MS OFFICE, AUTOCAD 3D)	SEC	SEC- COR E	0	0	0	3	3	3	Nil	Reta ined cour se	-	Skill developme nt	It equips students with digital literacy and technical drawing skills valuable in various careers.
20	24AR2 160	BUILDING MATERIALS AND CONSTRUCTI ON - II	BSAE	BSAE - COR E	0	0	4	0	4	4	Nil	New Cour se	As per Industri al Expert Ar.	Employabil ity	It equips you with the skills to build structures with timber,bamboo,steel and RCC, a valuable



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		(JOINERY, TRUSSES, ROOFS, FORMWORK)											Asish, the course s are merge d and new syllabu s is propos ed.		foundation for a career in construction.
21	23AR2 159	ARCHITECTU RAL DESIGN STUDIO -III	PRI	PRI-COR E	0	0	9	0	9	9	23AR 1256	Reta ined cour se	-	Entrepren eurship	It can connect with Entrepreneurship by exploring innovative and marketable building solutions.
22	23AR2 211	DESIGN OF STRUCTURE S - III (DESIGN OF FOOTINGS)	BSA E	BSAE - COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	Understanding how to design safe and stable footings is a critical skill for civil engineers ensuring employability in building design and construction.
23	22AR2 212	BUILDING SERVICES - I (PLUMBING AND SANITATION)	BSA E	BSAE - COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	It equips you with the skills to design, install, and maintain essential building systems, leading to high employability in construction and related fields.
24	24AR2 263	BUILDING MATERIALS AND CONSTRUCTI ON - III (STAIRCASE, FLOORING & ADVANCED ROOFING)	BSA E	BSAE - COR E	0	0	4	0	4	4	Nil	New Cour se	As per Industri al Expert Ar. Asish, the course s are merge d and new syllabu s is propos ed.	Employabil ity	Understanding flooring, and staircases builds essential skills for constructing safe and functional buildings, enhancing employability in the construction field.
25	22AR2 213	SITE ANALYSIS AND PLANNING	PCC	PCC-COR E	2	0	0	0	2	2	NIL	Reta ined cour se	-	Employabil ity	It equip you to design functional and successful spaces, making you a valuable asset in construction, architecture, and urban planning fields.
26	23AR2 261	ARCHITECTU RAL DESIGN STUDIO -IV	PRI	PRI-COR E	0	0	9	0	9	9	23AR 2159	Reta ined cour se	-	Entrepren eurship	It can equip you with the design thinking and project management skills necessary to launch your own



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															architectural practice.
27	23AR2 214	CONTEMPORARY ARCHITECTURE	PCC	PCC-COR E	3	0	0	0	3	3	Nil	Retained course	-	Employability	Understanding contemporary architecture positions you for in-demand skills in sustainable design, heritage preservation, and catering to India's unique building needs.
28	23AR2 262	COMPUTER STUDIO - II (IMAGE MAKING AND 3D MAKING SOFTWARE)	SEC	SEC-COR E	0	0	0	3	3	3	Nil	Retained course	-	Skill development	It develops skills in creating digital content, which is valuable in many fields.
29	23AR2 223	HUMAN SETTLEMENTS AND PLANNING	PCC	PCC-COR E	2	0	0	0	2	2	Nil	Retained course	-	Employability	Well-planned human settlements create communities with strong infrastructure and access to resources, fostering economic activity and job opportunities.
30	23AR3 120A	VERNACULAR ARCHITECTURE	PEC	PE-1	3	0	0	0	3	3	Nil	Retained course	-	Employability	Understanding traditional, locally-adapted design principles (vernacular architecture) empowers creation of sustainable buildings with high employability potential in the green construction sector.
31	23AR3 120B	SUSTAINABLE ARCHITECTURE		PE-1	3	0	0	0	3	3	Nil	Retained course		Employability	
32	23AR3 115	DESIGN OF STRUCTURES - IV (DETAILING OF STRUCTURAL MEMBER)	BSAE	BSAE-COR E	3	0	0	0	3	3	Nil	Retained course	-	Employability	Understanding structural member details translates directly to designing and detailing safe, efficient buildings, enhancing your employability in the construction field.
33	23AR3 116	BUILDING SERVICES - II (ELECTRICAL, AND ACOUSTICS)	BSAE	BSAE-COR E	3	0	0	0	3	3	Nil	Retained course	-	Employability -	It equips you with in-demand skills for designing comfortable, safe, and energy-efficient buildings.
34	24AR3 166	BUILDING MATERIAL AND CONSTRUCTION - IV ( PARTITIONS AND FALSE CEILING & FALSE FLOORING)	BSAE	BSAE-COR E	0	0	4	0	4	4	Nil	New Course	As per Industrial Expert Ar. Asish, the courses are merge	Employability	Understanding steel structures, partitions, and false ceilings equips you for in-demand construction jobs involving building skeletons, interior layouts, and finishes.



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43	23AR3 225A	APPROPRIATE CONSTRUCTION TECHNOLOGIES	PEC	PE-3	2	0	0	0	2	2	Nil	Retained course	-	Employability	Mastering sustainable construction practices like energy-efficient building methods opens doors to high-demand green jobs.
44	23AR3 225B	ENERGY EFFICIENT BUILDING	PEC	PE-3	2	0	0	0	2	2	Nil	Retained course	-	Employability	
45	23AR3 229A	ARCHITECTURAL CONSERVATION	PEC	PE-4	3	0	0	0	3	3	Nil	Retained course	-	Employability	Combining architectural conservation knowledge with set design skills allows for historically accurate and visually stunning set creation for film, theater, and museums.
46	23AR3 229B	SET DESIGN	PEC	PE-4	3	0	0	0	3	3	Nil	Retained course	-	Employability	
47	23AR4 126	BUILDING SERVICES - IV (BUILDING AUTOMATION)	BSAE	BSAE - CORE	3	0	0	0	3	3	Nil	Retained course	-	Employability	Building automation skills directly translate into employability in the growing field of smart and energy-efficient buildings.
48	23AR4 128A	HOUSING	PEC	PE-5	2	0	0	0	2	2	Nil	Retained course	-	Employability	The demand for professionals who design, build, and manage intelligent living spaces is driving job growth in the housing industry. architecture photography can showcase innovation, attracting clients and employers
49	23AR4 128B	ARCHITECTURE PHOTOGRAPHY & JOURNALISM	PEC	PE-5	2	0	0	0	2	2	Nil	Retained course	-	Employability	
50	23AR4 118A	INTERIOR DESIGN STUDIO	PEC	PE-6	0	0	4	0	4	4	Nil	Retained course	-	Employability	It equips students with the design skills and business acumen to launch their own interior design firms.
51	23AR4 118B	FURNITURE DESIGN STUDIO	PEC	PE-6	0	0	4	0	4	4	Nil	Retained course	-	Employability	
52	23AR4 168	ARCHITECTURAL DESIGN STUDIO -VII	PRI	PRI- CORE	0	0	1 2	0	1 2	1 2	23AR 3267	Retained course	-	Entrepreneurship	It can equip students with the creative problem-solving and design thinking skills necessary for entrepreneurial ventures.
53	23AR4 130	WORKING DRAWING - I (BUILDING STRUCTURE, CIVIL AND MASONRY)	BSAE	BSAE - CORE	0	0	4	0	4	4	Nil	Retained course	-	Skill development	Understanding working drawings in building structures, civil engineering, and masonry translates directly to the skills needed for construction and project execution.



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54	23AR4 131	RESEARCH METHODOLOGY	PRI	PRI-COR E	2	0	0	0	2	2	Nil	Reta ined cour se	-	Employabil ity	It equips you with the critical thinking and problem-solving skills sought by employers across all industries.
55	22AR4 232	BUILDING CONSTRUCTI ON AND MANAGEMEN T	PAE CC	PAE CC-COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Entrepren eurship	Building construction and management skills provide a strong foundation for entrepreneurship in the construction industry.
56	23AR4 269A	DISSERTATI ON	PEC	PE-7	0	0	4	0	4	4	Nil	Reta ined cour se	-	Skill developme nt	It equip students with the research and writing skills necessary to navigate complex projects and effectively communicate findings, fostering lifelong learning and professional success.
57	23AR4 269B	THESIS SEMINAR		PE-7	0	0	4	0	4	4	Nil	Reta ined cour se	-	Skill developme nt	
58	23AR4 233A	URBAN DESIGN	PEC	PE-8	2	0	0	0	2	2	Nil	Reta ined cour se	-	Employabil ity	Urban design and transportation planning shape livable cities, creating high demand for skilled professionals to design sustainable and efficient infrastructure.
59	23AR4 233B	BEHAVIORAL ARCHITECTURE		PE-8	2	0	0	0	2	2	Nil	Reta ined cour se	-	Employabil ity	
60	23AR4 270	URBAN DESIGN STUDIO	PRI	PRI-COR E	0	0	1 2	0	1 2	1 2	23AR 4168	Reta ined cour se	-	Entrepren eurship	It can equip students with the design thinking and place making skills needed to become entrepreneurial change makers in shaping their communities.
61	23AR4 234A	TRANSPORT ATION PLANNING	PEC	PE-9	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	Understanding how people behave in disasters allows you to design interventions that promote preparedness and effective response, increasing employability in disaster management.
62	23AR4 234B	DISASTER MITIGATION AND MANAGEMEN T		PE-9	3	0	0	0	3	3	Nil	Reta ined cour se	-	Employabil ity	
63	23AR4 271	WORKING DRAWING - II (DETAILING)	BSAE	BSAE - COR E	0	0	4	0	4	4	Nil	Reta ined cour se	-	Skill developme nt	It hones the technical drawing skills crucial for clear communication and precise manufacturing in any field.
64	23AR5 172	PRACTICAL TRAINING / INTERNSHIP	PAE CC	PAE CC-COR E	0	0	3 0	0	3 0	3 0	23AR 4270	Reta ined cour se	-	Employabil ity	Practical training/internships bridge the theory-practice gap, equipping graduates with in-demand skills and workplace experience desired by employers.



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65	22AR5 235	ARCHITECTU RE PROFESSION AL PRACTICE	PAE CC	PAE CC- COR E	3	0	0	0	3	3	Nil	Reta ined cour se	-	Entrepren eurship	It equips you with the skills to manage projects, finances, and clients, forming a strong foundation for entrepreneurial ventures in the design and construction industry.
66	23AR5 273	ARCHITECTU RAL THESIS	PRI	PRI- COR E	0	0	1 5	0	1 5	1 5	23AR 5172	Reta ined cour se	-	Entrepren eurship	Entrepreneurial architects can bridge the gap between design vision and real-world development through innovative building solutions.
67	23UC0 026	HUMAN VALUES,GEN DER EQUALITY AND PROFESSION AL ETHICS	HAS	HAS - COR E	2	0	0	0	2	2	Nil	Reta ined cour se	Univer sity.	Employabil ity	Gender Equality and topics are added in Human Values course for better learning of Students.
68	23FL3 054	OPEN ELECTIVE -1 FOREIGN LANGUAGE (FRENCH)	OEC	OE-1	3	0	0	0	3	3	Nil	Reta ined cour se	Univer sity	Skill developme nt	
69	23FL3 055	OPEN ELECTIVE -1 FOREIGN LANGUAGE (GERMAN)		OE-1	3	0	0	0			Nil	Reta ined cour se	Univer sity	Skill developme nt	
70	23FL3 058	OPEN ELECTIVE -1 FOREIGN LANGUAGE (JAPANESE)		OE-1	3	0	0	0			Nil	Reta ined cour se	Univer sity	Skill developme nt	
71	22UC0 021	SOCIAL IMMERSIVE LEARNING	SIL	SIL- COR E	0	0	0	4	1	4	Nil	Reta ined cour se	Univer sity	Skill developme nt	
72	22UC0 022	SOCIAL IMMERSIVE LEARNING	SIL	SIL- COR E	0	0	0	4	1	4	Nil	Reta ined cour se	Univer sity	Skill developme nt	
73	22UC0 023	SOCIAL IMMERSIVE LEARNING	SIL	SIL- COR E	0	0	0	4	1	4	Nil	Reta ined cour se	Univer sity	Skill developme nt	
74	22CC4 008	UI/UX DESIGN	VAC	VAC- CER T	0	0	0	8	0	8	Nil	Reta ined cour se	Certific ate Course s	Skill developme nt	UI/UX design enhances skill courses by improving user engagement, learning efficiency, and overall user satisfaction.



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75	23CC4 024	REVIT	VAC	VAC- CER T	0	0	0	8	0	8	Nil	Reta ined cour se	Certific ate Course s	Skill developme nt	Revit enhances design skills, fosters collaboration, and improves project efficiency in architecture and construction courses.
76	23CC4 023	ADOBE ILLUSTRATO R	VAC	VAC- CER T	0	0	0	8	0	8	Nil	Reta ined cour se	Certific ate Course s	Skill developme nt	Adobe Illustrator is essential for skill courses, enhancing creativity, precision, and efficiency in graphic design.
77	24CC4 025	DESIGN BUILDER	VAC	VAC- CER T	0	0	0	8	0	8	Nil	New cour se	Certific ate Course s	Skill developme nt	Design Builder equips architecture students with skills in energy modeling, sustainability, and building performance analysis.
78	24CC4 027	ENERGY SIMULATION SOFTWARE	VAC	VAC- CER T	0	0	0	8	0	8	Nil	New cour se	Certific ate Course s	Skill developme nt	Equest, an energy simulation software, enhances skill courses by providing hands-on experience in building energy analysis.
79	24CC4 026	REVIT ADVANCED - BIM	VAC	VAC- CER T	0	0	0	8	0	8	Nil	New cour se	Certific ate Course s	Skill developme nt	Revit Advanced - BIM enhances architectural design, collaboration, efficiency, visualization, and project management skills.
		<b>TOTAL CREDITS</b>							<b>2 7 4</b>						

**Z**

**Percentage of Syllabus Revision and New Courses =  $(11 + 0) / 59 = 19\%$**

**Percentage of Courses focusing on Employability=  $30 / 59 = 51\%$**

**Percentage of Courses focusing on Entrepreneurship=  $15 / 59 = 25\%$**

**Percentage of Courses focusing on Skill Development or Career advancement=  $14 / 59 = 24\%$**





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## MAPPING OF COURSE OUTCOMES WITH PROGRAM OUTCOMES (POs) and PROGRAM SPECIFIC OUTCOMES (PSOs)

S No	Course Code	Course Title	CO NO	Description of the Course Outcome	Program Outcomes										PSO	
					1	2	3	4	5	6	7	8	9	10	1	2
1	22AR1101	Theory of Architecture	CO1	Understand architecture and basics on space and form development.		2		2								
			CO2	Understand components of building circulation and its relation to architecture.	2	2										
			CO3	Understand Architectural aesthetics in designing a building & also understand the key role of principles applied in architecture.		2		2								
			CO4	Apply functioning of design process and its application in architectural buildings through case studies.				2						2	2	
2	24AR1102	History of Architecture - I (Ancient Civilization)	CO1	Understand Primitive Architecture and Ancient settlements in pre-Historic times and get knowledge on the Ancient River valley civilizations in the world.			2						2			2
			CO2	Understand the Architecture and Planning of Ancient River Valley Civilizations			2	2								2
			CO3	Understand the Culture and its influence on Architecture in Ancient Greece and Ancient Rome and its impact on Western Architecture			2						2			2
			CO4	Understand the Built forms in Ancient Greece and Ancient Roman Empire and its monumental Urban Architecture			2		2				2			
3	24AR1152	Architectural Drawing - I (Basic Geometry)	CO1	Understand the fundamentals of drawing and drafting, including construction and development of surfaces for various basic 3D shapes, as well as the representation of various building components and related elements.	2		2	2							2	



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Comprehend the representation of a building in plan, elevation, and sections, and be able to prepare simple measure drawings.	2				2							
4	24AR1153	Architectural Design Studio – 1 (Basic Design)	CO1	An understanding of the qualities of different elements as well as their composite fusions. An ability to engage and combine the elements of design in spontaneous as well as intentional ways to create desired qualities and effects	2		2									2
			CO2	Development of required skills – observation / analysis / abstractions / interpretation / representations / expressions through models and drawings. Understanding of 3D Composition by involving students in a number of exercises which will help generation of a form from a two dimensional / abstract idea.	2				2							2
5	24AR1254	Model Making Workshop	CO1	Understand cutting and sticking for making a model, Components of detailed model, Representing hills, Plateau, water bodies, furniture's, Cars							2	2				
			CO2	Understand different materials and apply the acquired knowledge and create a model Independently by choosing appropriate material and techniques.		2				2						3
6	23UC1101	Language Skills	CO1	Understanding the language Mechanics in Basic Grammar & Interactive Listening & Speaking									2	2	2	
			CO2	Understand the Pronunciation of Language through Role-plays												
			CO3	Apply different reading techniques and answer the Comprehension Passages												
			CO4	Apply various techniques to make Paragraph development and Essay Writing and Letter Writing												



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO5	Apply Life Skills to enhance the Employability									3	3	3	
7	23UC0009	Ecology & Environment	CO1	Understand the importance of Environmental education and conservation of natural resources									2			
			CO2	Understand the importance of ecosystems and biodiversity							2					
			CO3	Identify critically about individual roles in prevention of pollution. An Environmental Studies will be enabled to do independent research on human interactions with the environment							2					
			CO4	Understanding the environmental science knowledge on solid waste management, disaster management and EIA process Recognize the knowledge on environmental legislation, disaster management and EIA process.						2						
8	24UC1203	Design Thinking and Innovation	CO1	Understand the importance of Design thinking mindset for identifying contextualized problems		2				2						
			CO2	Analyze the problem statement by empathizing with user			2				2					
			CO3	Develop ideation and test the prototypes made					2	2	2					
			CO4	Explore the fundamentals of entrepreneurship skills for transforming the challenge into an opportunity					2			2				
9	24AR1204	Design of Structures - I (Plane trusses, shear force and bending	CO1	Make students Understand about the architecture and structural engineering interface. Understanding the concept of forces and structural systems.	2											
			CO2	Understanding the concept of forces and structural systems. Analyzing the plane trusses			2									



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					1	2	3	4	5	6	7	8	9	10	1	2
		moment)	CO3	Understanding of shear force and bending moments in column. Determination of deflection of beams			2 2									
			CO4	Make students Understand about the architecture and structural engineering interface. Understanding the concept of forces and structural systems.	2											
10	24AR1205	History of Architecture - II (Hindu Architecture)	CO1	Understand Vedic culture and study the origins of Early Hinduism, Jainism, Buddhism, and its rudimentary forms of construction.				2					2			2
			CO2	Understand Hindu forms of worship, concept, symbolism and to get knowledge on the metaphysical plan of Temple Architecture.			2	2								2
			CO3	Understand and to get knowledge on the temple architecture and temple towns during various periods and empires in South India and North India.			2						2			2
			CO4	Understand and to know the character and Architecture of temples of South India and North India in detail.			2		2				2			2
11	24AR1255	Architectural Drawing - II (3D forms and color)	CO1	Understand the concepts and Scientific Methods of Perspective Drawing and apply Rendering Techniques, principles of Shade & Shadow and Construct sciography of Architectural Structures							2	2		2		
			CO2	Understand identification and measuring of specific Architectural Details of Historically significant, Buildings and the presentation techniques of drawings							2			2		
12	24AR1256	Architectural Design Studio - II	CO1	Apply anthropometric data, conduct desktop/case study and understand collected data towards framing parameters for House design and Cafeteria Design Cafeteria Design		2		2							2	



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Create Architectural Details for floated design exercise floated as per the semester complexity, Buildings and the presentation techniques of drawings		3										3
13	24AR1258	Building Material And Construction-I(Masonry) (BMC-I)	CO1	Understand the material stones, bricks and Soil: Types, Properties, Challenges. Bricks: Compositions, Classifications, Alternative Bricks Stone: Stone classifications, tests, uses, preservations, Artificial stones. Concrete: Masonry						2						
			CO2	Apply the knowledge about the techniques of masonry and draft the types of Stone masonry, brick masonry, and Concrete block masonry. Different masonry Walls, Foundations, Lintels and Arches. To understand the basic building components of the building i.e.: Foundation to parapet wall. To study the elements of the building and their importance, to understand the sequences of construction & structural system.						2						
14	24UC1204	Communication Skills	CO1	Analyze and construct complex sentences, including compound-complex sentences, with proficiency and a high level of proficiency in using punctuation marks effectively, and develop an understanding of subtle grammatical nuances and apply them accurately in their writing. Speaking										2	2	2
			CO2	Demonstrate improved listening comprehension skills, including the ability to understand native-level speech, various accents, and complex linguistic structures. utilizing appropriate verbal and nonverbal communication techniques.												





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					1	2	3	4	5	6	7	8	9	10	1	2
			CO3	Engage in practicing and making inferences, drawing conclusions, and interpreting implicit meaning from challenging texts, fostering deeper comprehension and engagement with the material.												
			CO4	Demonstrate adaptability in their writing, tailoring their language, tone, and style to suit the needs and expectations of specific audiences and rhetorical situations.										2	2	2
15	24AR2107	Design of Structures - II (Design of beams and columns)	CO1	Understanding the concept of simple stresses and strains and elastic properties of solids	2											
			CO2	Analyze the properties of structural timber and bamboo			2									
			CO3	Analyze the Design of flexure members of timber and design of simple truss.			2									
			CO4	Understand Structural properties of brick masonry and analysis			2									
16	24AR2108	History of Architecture - III (Medieval periods)	CO1	Understanding the evolution of early Christian and Medieval periods its Architecture and socio-political changes	2										2	
			CO2	Understanding Renaissance and Mannerist Architectures and their practices in Europe, growth of nations and styles of Baroque and Rococo	2										2	2
			CO3	Understanding the Islamic principle's philosophy & its relevance to various built forms and the influence of Islamic architecture on Indian subcontinent Architecture of various provinces under sultanate rule	2										2	
			CO4	Understanding of Architectural developments during Mughal Dynasty Study of cross culture influence and evolution of secular architecture in princely states	2										2	



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					1	2	3	4	5	6	7	8	9	10	1	2
17	24AR2109	Climate Responsive Architecture	CO1	Understanding of elements of climate, human comfort, and human body heat balance	2			2								2
			CO2	Understanding the concept of heat transfer in buildings, sun path diagrams and designing shading devices			2		2							2
			CO3	Understanding air movement for designing buildings accordingly.				2	2							2
			CO4	Understanding climate responsive architecture through case studies.				2	2							2
18	24AR2110	Site Survey and Analysis	CO1	Understanding Surveying using Chain and Compass. Understanding Surveying using Dumpy Level and Theodolite.				1				2				2
			CO2	Applying survey practices in field using Chain, Compass, Dumpy Level, Theodolite, Total Station and Alidade				1						3		3
19	24AR2157	Computer Studio - I (MS office, AutoCAD 3D)	CO1	Understand the basics of computer system and their supporting technologies like MS Office.	2	2									1	
			CO2	Apply the learned skills in preparation of documentation reports, analysis reports, and audio-visual presentations.	2	2									2	
20	24AR2160	Building Material and Construction-II (Doors, Windows, Partition, False Ceiling)	CO1	Understand the materials and its joinery: Timber, Bamboo. Understand the techniques, types of construction of wooden doors, windows, roofing. Understanding Cement and Concrete: Types, properties, tests, and applications in Doors, Windows, Roofing Understanding Ferrous and Nonferrous materials (Steel): Types, properties, Applications in Doors, Windows, Roofing,						3						



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Apply the knowledge and draft the details of wooden & steel trusses, RCC roofs, brick roofs, door and windows, wooden, RCC and Steel Roofs trusses as per construction industry/practice. Formwork, Shoring and Scaffolding: types and application						3						
21	24AR2159	Architectural Design Studio - III	CO1	Applying methods to understand and analyze the use, spaces, and concepts of residential activities, as well as applying methods to understand and analyze the spaces, connectivity, and standards of institution buildings.				2						2	2	2
			CO2	Create projects with design typologies such as Foundation School/Pre School/Public Health Care Center/Restaurant/Museum/Library, labeled as Project 1 and Project 2.		3					3				3	3
22	24AR2211	Design of Structures - III (Design of footings)	CO1	Understanding of Basics of RCC design	3		3									
			CO2	Understanding and designing of columns	3		3									
			CO3	Understanding and designing of footings and staircases	3		3									
			CO4	Understanding and analysis a given section for under or over design carrying capacity	3		3									
23	24AR2212	Building Services - I (Plumbing and sanitation)	CO1	Understanding the processes involved in the distribution, treatment, and disposal of wastewater.							2					
			CO2	Understanding the building sanitation method and different types of plumbing systems.								2				
			CO3	Understanding the plumbing and sanitary layouts of a residence.								2				
			CO4	Understanding the use and installation of various plumbing fixtures and sewerage systems for sanitary conveyance.								2				2



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					1	2	3	4	5	6	7	8	9	10	1	2
24	24AR2263	Building Material And Construction-III (Staircase, Flooring And Advanced Roofing)	CO1	Understand the Floor Finishes, Roofing techniques like Vaults, domes and Different slab techniques like one way slab, two-way slab, waffle, Bubble deck slab etc. Staircase components and types. Damp proof material and plastering	2		2									
			CO2	Flooring; Concrete, Wooden, Stone, Tile etc. Slabs/Roofing: Vault, Dome, Waffle, Bubble deck, hollow core slabs, filler slab etc. Staircase types using the materials Wooden, metal, RCC etc.	2		2			3						
25	24AR2213	Site Analysis and Planning	CO1	Understand about the basics of site, measuring and drawing methodologies.		1										
			CO2	Understand the importance of analysis of a site required in architectural design and building construction.			2									
			CO3	Understand the context of the site with respective to the surrounding land use typology.			2								1	
			CO4	Understand the site planning techniques and layout principles to be followed prior to site designing.				2								
26	24AR2261	Architectural Design Studio - IV	CO1	Application of anthropometry, circulation patterns, standards of various facilities		2		2							2	
			CO2	Create the Design after the analysis of the rural planning, infrastructure, and settlement planning of a village (rural settlement) as per the needs of the settlement as Project 1. Propose a design depending on the village documentation and survey that is functionally, good community oriented and open spaces – Project 2		3		3				3				3



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					1	2	3	4	5	6	7	8	9	10	1	2
27	24AR2214	Contemporary Architecture	CO1	Understand the Architecture and Planning of various Cities during Medieval Age. Understand the Culture and Built Forms in Pre – Independence (Colonial Rule) and Post-Independence of India.	2		2									
			CO2	Understand the Theories of current Architect practices and their applicability in meeting present day Needs.	2				2							
			CO3	Understand Cubism & Constructivism along with various Building styles of Early Modern Architects. Understand Post Modernism and International Style along with Ideas and Works of Various Architects of that time			2	2								
			CO4	Understand Critical Regionalism and other alternative practices. along with Ideas and Works of Various Architects of that time. Understand Deconstructivism along with Forms, Ideas and Concepts followed by Various Architects in their works			2		2							
28	24AR2262	Computer Studio - II (Image making and 3d making software)	CO1	Understand and learn to use of image editing software, graphics and animation software's.	2	2									2	
			CO2	Apply the tools of sketch up or equivalent software to create a detailed 3D model by working in collaboration by application of advanced tools	2	2									3	
29	24AR2223	Human Settlements and Planning	CO1	Understand the various elements of Human Settlements and the classification of Human Settlements.		2										
			CO2	Understand familiarize the students with Planning concepts and process in Urban and Regional Planning.			2									
			CO3	Understand the changing dynamics of Urban Form and its planning according to urban transformation			2						2			





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					1	2	3	4	5	6	7	8	9	10	1	2
			CO4	Understand the interrelationship between Human Settlements structure and Social Dynamics.			1						2			2
30	24AR3120A	PE-1 (Vernacular Architecture)	CO1	Understand the Vernacular Architecture, its Approaches & Concepts.	2			2								
			CO2	Understand the Vernacular styles of Buildings in Western, Northern & North-Eastern India.					2							
			CO3	Understand the Vernacular Architectural Styles of Southern India.					2							
			CO4	Understand the Influence of Western world on Vernacular Architecture.					2							
	24AR3120B	PE-1 (Sustainable Architecture)	CO1	Remember the Fundamentals of Sustainability and its impact on Environment							1	1				2
			CO2	Understanding the new concepts and terminologies of sustainability						2		2	2			2
			CO3	Understand the importance of site planning and energy, water efficient landscaping as an important tool in sustainable architecture							3	3				2
			CO4	Apply National and International Case studies of Sustainable Architecture through research summary on GRIHA, LEED and other Certification							3	3	3			2
31	24AR3115	Design of Structures - IV (Detailing of structural member)	CO1	Understanding of limit state design.		2										
			CO2	Apply the techniques and Design of reinforcement for a section.		3										
			CO3	Apply the Design detailing, and the purpose of one-way and two-way slabs.		3										2
			CO4	Apply the detailing for special structures such as deep beams, corbels, and shear. walls etc.			3									2
32	24AR3116	Building Services - II	CO1	Understanding the planning techniques and study of electricity, installations, wiring, and principles of	2											



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					1	2	3	4	5	6	7	8	9	10	1	2
		(Electrical, and Acoustics)		distribution and safety.												
			CO2	Understanding the application of artificial illumination and lighting design for various spaces			2									
			CO3	Understanding the knowledge of ventilation principles.									2			2
			CO4	Applying the properties of sound and architectural acoustics, applicability of acoustic concepts and design, and learning how to create acoustics and analyze the integration of all three services in architectural planning.									3			3
33	24AR3166	Building Material and Construction-IV (Partitions, False Ceiling And False Flooring)	CO1	Understanding Plastics, Glass, Aluminum, Gypsum Board, Fiber Board, particle Board as a building material: types, properties, use, principles and methods of construction. Markey Survey of the material types.	2		2									2
			CO2	Apply the knowledge: Glass and Metal cladding of facades and building envelopes, Skylights: Fixing and fabrication details. Walls: Sandwich panel walls, PUF panels etc Partitions, False Ceiling and False Floorings: Types and Construction techniques, Construction details as per industry standards.	2		2									2
34	24AR3117	Building Bye laws and Office Management	CO1	Understand the importance of Building codes in different zones and learning about the terminologies	2		2								2	
			CO2	Understand the different norms from National Building Code of India	2				2						2	
			CO3	Understand the basic need of building bye laws of local region and to learn the terminology. To be introduced to Energy Conservation	2		2	2							2	
			CO4	Understand basis office procedure and management techniques in architecture			2	2								2



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					1	2	3	4	5	6	7	8	9	10	1	2
35	24AR3164	Architectural Design Studio - V	CO1	Analyze the use, the spaces and the concepts of different homes for the disabled. To understand and analyze the spaces, connectivity, and the standards of Institution buildings		2		2								3
			CO2	Design a Social oriented building. A Home for physically and mentally challenged- Project 1 To design an institution-oriented building, School of Architecture, Design Institutions. Project 2 Old age Home, orphan age, School for disabled, Campus Design, theme-based hotels, shopping mall, Resort etc.		3		3								3
36	24AR3165	Computer Studio - III (Building Information Modelling)	CO1	Understand interface, workspace, and utilization of tools of 3D modeling software applies the required tools and components in building a 3D model. To create documentation reports, analysis reports, and audiovisual presentations.	2	2										2
			CO2	Understand, visualize the space and apply the tools of BIM software, identify the need of tools of BIM software. To create a detailed 3D model by working in collaboration by application of advanced tools	2	2										2
37	24AR3221	Building Services - III (HVAC and fire safety)	CO1	Understanding the Thermal Properties of the building material and components and mechanical ventilation	2										2	
			CO2	Understanding the principles, systems, and design criteria of HVAC.	2										2	
			CO3	Understanding the techniques and concepts in fire safety norms in the buildings.	2										2	
			CO4	Apply the techniques of mechanical transportation systems in building plans	2										3	
38	24AR3222	Specification, Estimation and	CO1	Understanding of data required and methods of estimation	2										2	



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					1	2	3	4	5	6	7	8	9	10	1	2
		Costing	CO2	Applying various methods, estimate different quantities.			3								3	
			CO3	Understanding of the types of estimates and costing	2		2								2	
			CO4	Understanding various specifications and terminology used.							2	2				2
39	24AR3224A	PE-2 (Landscape Design Studio)	CO1	Understanding landscape principles and types around the world. Advanced skills in utilizing site analysis techniques, plant selection, and design software to create sustainable and aesthetically pleasing outdoor spaces that enhance the built environment.						2	2	2			2	
			CO2	Develop a skill to integrate various knowledge systems to arrive at a design proposal. Minimum of 2 projects at different levels – Local, Urban. Utilizing traditional and digital methods, while exploring sustainable practices and cultural influences in landscape design Projects typology – Residential landscape, Urban Parks, Terrace gardening etc.						3	3		3		2	
	24AR3224B	PE-2 (Modular Construction Studio)	CO1	Applying methods to develop an understanding of space design at the local level. Additionally, applying techniques to integrate various knowledge systems to formulate a design proposal of a practical scale, along with implementing the process used for the same.						2		2				
			CO2	Creating opportunities for students to comprehend the area, scale, design, and implementation factors involved in Modular construction. Additionally, create projects for students to incorporate Modular construction, with a mandatory requirement for conducting case studies and documentation of Modular Construction.						2	2		2			



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					1	2	3	4	5	6	7	8	9	10	1	2
40	24AR3267	Architectural Design Studio - VI	CO1	Expose the students to the challenges of designing functionally complicated buildings, having a complex array of activities and services. To familiarize the students to the task of coordinating integration of structural design and specialized building services in the framework of architectural design		2		2						2	2	
			CO2	Design A Functionally Complex Building (Medium Rise Structure Example Hospital, Juvenile Correction Centre, Research And Development Center) , Project 2 Design An Shopping Mall or Students Hostel Or Travelers Hostel, Conventional Center,5 star hotel Etc.		3									3	
41	24AR3225A	PE-3 (Appropriate Construction Technologies)	CO1	Understanding the alternative building materials, applying cost. effective materials and techniques to resolve environmental problems.		2	2									
			CO2	Understanding the indigenous construction materials and techniques for building resilience and disaster mitigation		2	2									
			CO3	Understanding the materials and techniques for energy efficient building construction		2	2									
			CO4	Applying Building Information Modelling in modern construction industry						3						
	24AR3225B	PE-3 (Energy Efficient Building)	CO1	Understand the importance of energy efficiency in buildings and strategies involved. Determine SMART, INTELLIGENT etc	2			2								
			CO2	Understand the importance of relevance of water in built environment						2						
			CO3	Understand Building Envelope installations and Dynamic facades Simulation			2						2			
			CO4	Understand Lighting, Appliances and Occupant Behaviour and introduction to simulation and analysis			2						2			





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					1	2	3	4	5	6	7	8	9	10	1	2
				software												
42	24AR3229A	PE-4 (Architectural Conservation)	CO1	Understand about the basics of Conservation in India									2			
			CO2	Understand the Conservation Practices			2									
			CO3	Understand the importance & analysis of Urban Conservation			2									
			CO4	Discuss about Conservation planning & Adaptive Conservation.				2								
	24AR3229B	PE-4 (Set Design)	CO1	Understand the Background writing and Concept creation for PLAY.									2			
			CO2	Understand the Technology and concepts involved in Film set design.			2									
			CO3	Understand and making of Background set to resemble the feature, Variation nasality in Lay outing Set.			2									
			CO4	Mock model on Concept allotted and study Lighting and prop Installations.				2								
43	24AR4126	Building Services - IV (Building automation)	CO1	Understand the philosophy of building automation systems and subsystems						2						
			CO2	Understanding about the communication and security systems						2						
			CO3	Applying the integration of building services into architectural design						3						3
			CO4	Applying the interaction and integration between building structure, systems, services, management, control, and information technology.						3						3
44	24AR4128B	PE-5 (Architecture Photography)	CO1	2Understand basics regarding usage, equipment and varied parameters of smartphone camera, professional camera										1	1	



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Application of photographic equipment and techniques										2	2	
			CO3	Analyze with photojournalism and visual communication techniques										2	2	
			CO4	Apply the knowledge gained to visualize and write about buildings of architectural importance										2	2	
	24AR4128A	PE-5 (Housing)	CO1	Understand housing and Housing issues	2		2									
			CO2	Understand Housing, 5-year plans specific to housing	2				2							
			CO3	Understand Critical Sources of Finance			2	2								
			CO4	Understand Planning – Physical, Administration, Socio-Cultural, Sustainable, Financial, Future forecasts, and trends			2	2								
45	24AR4118A	PE-6 (Interior Design Studio)	CO1	Apply and demonstrate proficiency in conceptualizing and executing interior design projects, integrating principles of spatial planning, aesthetics, and functionality effectively.	2		2									
			CO2	Analyze advanced skills in utilizing digital tools and software to create comprehensive interior design presentations, fostering creativity and professionalism in their design solutions	2				2							
	24AR4118B	PE-6 (Furniture Design Studio)	CO1	Understand and demonstrate proficiency in conceptualizing and executing furniture design projects, integrating principles of ergonomics, aesthetics, and functionality effectively.	2		2									2



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Analyze the skills in Planning of furniture with material usage understanding materials, manufacturing techniques for practical and innovative solutions. Minimum of 2 projects should be done by using prototypes, Detail drawings and utilizing traditional and digital methods, while exploring sustainable practices and cultural influences in furniture design	2				2							2
46	24AR4168	Architectural Design Studio - VII	CO1	Application of the integration of services, sustainable building and anthropometry, circulation patterns.		2		2						2	2	
			CO2	Create and design spatial planning and functionality in Low. Rise. High Density Project. Project 1. To analyze the spaces, connectivity, and the standards of sustainable and service intensive building. Case study. To create design of a sustainable service integrated intelligent. Green building in High Rise (Project 2)		3		3					3			
47	24AR4130	Working Drawing - I (Building structure, civil and masonry)	CO1	Applying teaching methods, instruct students in preparing detailed working drawings for effective execution at construction sites and impart knowledge of the essential components of working drawings, notations, and drawing standards.	2						2					
			CO2	Applying methods of transmittals and record-keeping, integrate services drawings and detail various types of drawings. Apply the latest materials knowledge with specifications for updates.				2			2					
48	24AR4131	Research Methodology	CO1	Understand the basics of the research and process.			2	2					2			



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Understand about the research methodologies - Quantitative			2						2			
			CO3	Understand about the research methodologies - Qualitative			2						2			
			CO4	Apply the research in formulating the scientific manuscripts and make it publishable			2								2	
49	24AR4232	Building Construction and Management	CO1	Understand the Objectives and Methods of project Management System			2				2				2	
			CO2	Understand various Tools and Techniques to facilitate efficient management of Projects			2					2			2	
			CO3	Analyze Project cost model and steps involved in cost optimization						3		3			2	
			CO4	Applying Scientific Evaluation Techniques to Manage Project Durations and resources with Examples								3			2	
50	24AR4269A	PE-7 (Dissertation)	CO1	Understand research skills by formulating a well-defined research question, conducting in-depth literature reviews, and presenting original findings in a structured academic format						3	3				1	
			CO2	Analyzing the theoretical frameworks and empirical evidence to produce a coherent argument, contributing new insights to their field of study.		2	3									1
	24AR4269B	PE-7 (Thesis Seminar)	CO1	Identify, explore and research topics of their interest; then describe by the organized presentations.	2					3						1



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Apply the ideas in finding a new solution to the existing problem and interpret via applying the architectural systems						3				2	2	
51	24AR4233A	PE-8 (Urban Design)	CO1	Understand Urban Design terminologies		2								2	2	2
			CO2	Understand Users and Activities in a city		2		2					2			2
			CO3	Understand public spaces, streets & Transport		2							2	2		2
			CO4	Understand Application of Urban Design		2		2					2			2
	24AR4233B	PE-8 (Behavioral Architecture)	CO1	Understand concepts and concerns of perception. Identify and develop the sensitivity to the needs of users and clients	2			2						2		2
			CO2	Understanding the designing and planning for urban quality			2							2		2
			CO3	Understand and apply the macro and micro built environment and behavioral aspects			3						3	2		2
			CO4	Apply the relationship between built - environment and perception			2						3			2
52	24AR4270	Urban Design Studio	CO1	Analyze the role of Services at higher scale in Urban level and apply the integration of services into intelligent sustainable building case study case study							2	2				2
			CO2	Create High Density Urban facility as a solution to the Urban area problems, Current issues. (Project-1) Analyze the spaces, Transformation according lifestyle changes in Urban population, connectivity, and the standards of sustainable and service intensive building. Case study. Create design of a sustainable service integrated intelligent green building High Density Project. (Project 2)			2							2	2	





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					1	2	3	4	5	6	7	8	9	10	1	2
53	24AR4234A	PE-9 (Transportation Planning)	CO1	Understand Basic elements and various category of vehicles depending upon the category of Roads exiting	1											
			CO2	Understanding Various types of Circulation & Users along with their infrastructural needs.			2				2					
			CO3	Understanding Road Safety & Civic Sense			2				2					
			CO4	Understanding Traffic & Transportation byelaws & Regulation									2			2
	24AR4234B	PE-9 (Disaster Mitigation and Management)	CO1	Understand the necessity for disaster management and measures that are to be followed.			2								2	
			CO2	Understand the disaster preparedness and Involving Design Considerations for buildings			2								2	
			CO3	Understand the study of design considerations for disaster management and precautions.			2								2	
			CO4	Understand the Relief & Rehabilitation for Disasters			2								2	
54	24AR4271	Working Drawing - II (Detailing)	CO1	Applying teaching methods, instruct students in preparing detailed working drawings for effective execution at construction sites and impart knowledge of the essential components of working drawings, notations, and drawing standards.							2	2				
			CO2	Applying methods of transmittals and record-keeping, integrate services drawings and detail various types of drawings. Apply the latest materials knowledge with specifications for updates.			2						2			
55	24AR5172	Practical Training / Internship	CO1	Understand the preparation of professional architectural portfolio and resume. Apply Academic architectural skills in various projects while working in office						2	2	2				



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					1	2	3	4	5	6	7	8	9	10	1	2
			CO2	Evaluate attributes of project, based on discussions with Chief Architect and clients. Site supervision during execution and coordination with the agencies involved in the construction process.						3	3	3				
56	24AR5235	Architecture Professional Practice	CO1	Expose students to the daily realities of an architectural practice through the Training								2				
			CO2	Facilitate an understanding of the evolution of an architectural project from design to execution.									2	2		
			CO3	Enable an orientation that would include the process of development of conceptual ideas, presentation skills.						2	2					
			CO4	Involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure.										2		
57	24AR5273	Architectural Thesis	CO 1	Applying the Architectural Thesis, Writing Synopsis, Studies Related to Project. Literature study in relation to literatures, Desktop Studies, Case studies.	2	2	2	2								
			CO2	Create a design from the Site Study, Application of Data & Information Collected regarding project topic, Preliminary Drawings production. Creation of final Viable drawings & Building Services, Physical & Virtual Model and Report making.	3	3	3	3	3	3						
58	23UC0026	Human Values, Gender equality & Professional Ethics	CO1	Understand and analyze the essentials of human values and skills, self-exploration, happiness, and prosperity.	2											
			CO2	Evaluate coexistence of the "I" with the body.				3								
			CO3	Identify and associate the holistic perception of harmony at all levels of existence.					4							
			CO4	Develop appropriate technologies and management patterns to create harmony in professional and personal lives.										4		



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					1	2	3	4	5	6	7	8	9	10	1	2
59		OEC-1 Foreign Language														

2024-25 Bachelors of Architecture PDD



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**Program Articulation Matrix (Mapping of Courses with POs/SOs/PSOs)**

S.No	Course Code	Course Name	Category	L	T	P	S	I	N	Cr	PO										PSO	
											1	2	3	4	5	6	7	8	9	10	1	2
1	24AR1101	Theory Of Architecture	PCC	3	0	0	0	0	0	3	2			2		2						2
2	24AR1102	History Of Architecture - I (Ancient Civilization)	PCC	3	0	0	0	0	0	3			2	2	2		2			2		1
3	24AR1152	Architectural Drawing - I (Basic Geometry)	PCC	0	0	3	0	0	0	3							2	2		2	1	1
4	24UC1102	Language Skills	HAS	2	0	2	0	0	0	3	2						2	2				
5	24AR1153	Architectural Design Studio - I	PRI(PC)	0	0	9	0	0	0	9		2		2			2		2	2	1	
6	24AR1154	Model Making Workshop	PCC	0	0	4	0	0		4						2	2	2			1	2
7	23UC0009	Ecology & Environment	BSAE	0	0	0	0	2	0	0						1				1		
8	23UC1203	Design Thinking And Innovation	HAS	2	0	2	0	0	0	3					2	2						
9	24AR1204	Design Of Structures - I (Plane Trusses, Shear Force And Bending Moments)	BSAE	3	0	0	0	0	0	3						2		2	2			2
10	24AR1205	History Of Architecture - II(Hindu Architecture)	PCC	3	0	0	0	0	0	3	2		2	2	2							1

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S.No	Course Code	Course Name	Category	L	T	P	S	I	N	Cr	PO										PSO	
											1	2	3	4	5	6	7	8	9	10	1	2
11	24AR2155	Architectural Drawing – II (3d Forms And Colour)	PCC	0	0	3	0	0	0	3							2	2		2		
12	24AR1256	Architectural Design Studio -II	PRI (PC)	0	0	9	0	0	0	9		2		1						2		2
13	24AR1258	Building Material And Construction - I (Masonry)	BSAE	0	0	4	0	0	0	4				2		2	2	2	2		2	2
14	24UC1204	Communication Skills	HAS	2	0	2	0	0	0	3						2	1	2	2			
15	24AR2107	Design Of Structures - II (Design Of Beams And Columns)	BSAE	3	0	0	0	0	0	3						2		2	2			2
16	24AR2109	Climate Responsive Architecture	BSAE	3	0	0	0	0	0	3				1		2		2				2
17	24AR2110	Site Survey And Analysis	SEC	0	0	0	3	0	0	3						2	1	2				
18	24AR2108	History Of Architecture- III( Medieval Architecture)	PCC	3	0	0	0	0	0	3	2		2	2	2							1
19	24AR2157	Computer Studio - I (Ms Office, Autocad 3d)	SEC	0	0	0	3	0	0	3							2	2			1	2
20	24AR2160	Building Material And Construction - II (Joinery, Trusses, Roofs, Formwork)	BSAE	0	0	4	0	0	0	4				2		2	2	2	2			



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											1	2	3	4	5	6	7	8	9	10	1	2
21	24AR2159	Architectural Design Studio -III	PRI (PC)	0	0	9	0	0	0	9		2		1						2	2	2
22	24AR2211	Design Of Structures – III (Design Of Footings)	BSAE	3	0	0	0		0	3	3		3			3						
23	24AR2212	Building Services - I (Plumbing And Sanitation)	BSAE	3	0	0	0	0	0	3			1			2	1	2	2			
24	24AR2263	Building Material And Construction - III (Staircase,Flooring & Advanced Roofing)	BSAE	0	0	4	0	0	0	4				2		2	2	2	2			
25	24AR2213	Site Analysis And Planning	PCC	2	0	0	0	0	0	2	1		2				2					2
26	24AR2261	Architectural Design Studio -Iv	PRI (PC)	0	0	9	0	0	0	9		2		1						2	2	2
27	24AR2214	Contemporary Architecture	PCC	3	0	0	0	0	0	3	2		2	2	2		2			2		1
28	24AR2262	Computer Studio - II (Image Making And 3d Making Software)	SEC	0	0	0	3	0	0	3							2	2			1	2
29	24AR2223	Human Settlements And Planning	PCC	2	0	0	0	0	0	2	2	1					2					
30	24AR3120A	PE 1 - Vernacular Architecture	PEC	3	0	0	0	0	0	3	2		2	2	2		2			2		1
	24AR3120B	PE 1 - Sustainable		3	0	0	0	0	0	3	2		2			2						2

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											1	2	3	4	5	6	7	8	9	10	1	2
		Architecture																				
31	24AR3115	Design Of Structures - IV (Detailing Of Structural Member)	BSAE	3	0	0	0		0	3		3										
32	24AR3116	Building Services - II (Electrical, And Acoustics)	BSAE	3	0	0	0	0	0	3			1			2	1	2	2			
33	24AR3166	Building Material And Construction - IV (Partitions, False Ceiling & False Flooring)	BSAE	0	0	4	0	0	0	4				2		2	2	2	2			
34	24AR3117	Building Bye Laws And Office Management	PCC	2	0	0	0	0	0	2	2		2	2	2						2	
35	24AR3164	Architectural Design Studio -V	PRI (PC)	0	0	9	0	0	0	9		2		1						2	2	2
36	24AR3165	Computer Studio - III (Building Information Modelling)	SEC	0	0	4	0	0	0	4	2	2										2
37	24AR3221	Building Services - III (HVAC And Fire Safety)	BSAE	3	0	0	0	0	0	3			1			2	1	2	2			
38	24AR3222	Specification, Estimation And Costing	PCC	3	0	0	0	0		3	1		2		2		2					

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											1	2	3	4	5	6	7	8	9	10	1	2
39	24AR3224A	PE 2 - Landscape Design Studio	PEC	0	0	4	0	0	0	4		1		1			2			2	2	2
	24AR3224B	PE 2 - Modular Construction Studio		0	0	4	0	0	0	4												
40	24AR3267	Architectural Design Studio -VI	PRI (PC)	0	0	12	0	0	0	12		2		1						2	2	2
41	24AR3225A	PE 3 - Appropriate Construction Technologies	PEC	2	0	0	0	0	0	2		1	2			2						
	24AR3225B	PE 3 - Energy Efficient Buildings		2	0	0	0	0	0	2	2		2			2						2
42	24AR3229A	PE 4 - Architectural Conservation	PEC	3	0	0	0	0	0	3		1					2					
	24AR3229B	PE 4 - Set Design		3	0	0	0	0	0	3		1					2					
43	24AR4126	Building Services - IV (Building Automation)	BSAE	3	0	0	0	0	0	3			1			2	1	2	2			
44	24AR4128A	Pe 5 - Housing	PEC	2	0	0	0		0	2		1	2		2		2					
	24AR4128B	Pe 5 - Architecture Photography		2	0	0	0	0	0	2		2	1									
45	23AR3118A	Pe 6 - Interior Design Studio	PEC	0	0	4	0	0		4		1		1			2			2	2	2
	23AR3118B	Pe 6 - Furniture Design Studio		0	0	4	0	0		4	1	1	1	2	2							
46	24AR4168	Architectural Design Studio	PRI	0	0	12	0	0		12		2		1						2	2	2

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S.No	Course Code	Course Name	Category	L	T	P	S	I	N	Cr	PO										PSO	
											1	2	3	4	5	6	7	8	9	10	1	2
		-VII	(PC)																			
47	24AR4130	Working Drawing - I (Building Structure, Civil And Masonry)	BSAE	0	0	4	0	0	0	4				2		2	2	2	2			
48	24AR4131	Research Methodology	PRI (PC)	2	0	0	0	0	0	2				2	2				2			
49	24AR4232	Building Construction And Management	PAECC	3	0	0	0	0	0	3			1			2	1	2	2			2
50	24AR4269A	Pe 7 - Dissertation	PEC	0	0	4	0	0	0	4												
	24AR4269B	Pe 7 - Thesis Seminar		0	0	4	0	0	0	4												
51	24AR4233A	Pe 8 - Urban Design	PEC	2	0	0	0	0	0	2		1					2					
	24AR4233B	Pe 8 - Behavioral Architecture		2	0	0	0	0	0	2	1		2		2		2					
52	24AR4270	Urban Design Studio	PCC	0	0	12	0	0	0	12		1					2			2	2	2
53	23AR4234A	Pe 9 - Transportation Planning	PEC	3	0	0	0	0		3												
	23AR4234B	PE 9 - Disaster Mitigation And Management	PEC	3	0	0	0	0		3	2		2	2		2			2			2
54	24AR4271	Working Drawing - Ii (Detailing)	BSAE	0	0	4	0	0	0	4				2		2	2	2	2			
55	24AR5172	Practical Training / Internship	PAECC	0	0	30	0	0		30				2		2	2	2	2			
56	24AR5235	Architecture Professional	PAECC	3	0	0	0	0	0	3	1		2		2		2					

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S.No	Course Code	Course Name	Category	L	T	P	S	I	N	Cr	PO										PSO	
											1	2	3	4	5	6	7	8	9	10	1	2
		Practice																				
57	24AR5273	Architectural Thesis	PCC	0	0	15	0	0	0	15		2		2					1	2	2	2
58	23UC0026	Human Values, Gender equality and Professional Ethics	HAS	0	0	0	0	4	0	2	2	2			2	2			2	2	2	
59		Foreign Language	OEC																			





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### SYLLABUS OF COURSES UNDER VARIOUS CATEGORIES AS PER THE TEMPLATE IN

### Annexure 3

### SYLLABUS OF COURSES PROFESSIONAL CORE COURSES – PCC



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### THEORY OF ARCHITECTURE (TOA)

COURSE CODE	22AR1101	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand architecture and basics on space and form development.	2	PO2, PO4
CO2	Understand components of building circulation and its relation to architecture.	2	PO2, PO1
CO3	Understand Architectural aesthetics in designing a building & also understand the key role of principles applied in architecture.	2	PO2, PO4
CO4	Apply functioning of design process and its application in architectural buildings through case studies.	3	PO4, PO10,PSO1

#### Syllabus

Module 1	Architectural Space and Mass: Definition of architecture- Architect role and responsibilities – primary elements of architecture 2D & 3D - Space defining elements, openings in space defining elements, spatial relationship, spatial organization, Primary forms, properties of form, transformation of forms - dimensional transformation, subtractive, additive forms, organization of additive forms - Articulation of forms –Degree of Enclosure, Light and View.
Module 2	Circulation Movement through space - Components of building circulation - The building approach, The building entrance, Configuration of path, Path space relationship, Form of circulation space - Circulation diagram for residence and restaurant
Module 3	Aesthetic Components of Design Proportion & scale in relation to human scale, Modular, Visual and Human Scale - Exploration of the basic principles of design such as balance, rhythm, repetition, transformation, symmetry, hierarchy, axis with building examples. Involves the study of the other principles that govern an architectural composition Such as Unity, Harmony, Dominance, Fluidity, Emphasis, Contrast etc.
Module 4	Design Process and Analysis of Building Design process –integration of aesthetics and function - Understanding of formative ideas, organization concepts, spatial characteristics, - Massing and circulation in design analysis of the following buildings: Falling water house, & Guggenheim Museum by F. L. Wright -Villa Savoye & Chapel of Notre dame Du Haut by Le Corbusier



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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Principles of Design in Architecture	K.W.Smithies	Van Nostrand Reinhold Company	1981
2	Design Process - A Primer for Architectural & Interior Design	Sam F. Miller	Van Nostrand Reinhold Company,	1995
3	Elements of Architectural Design – A Visual Resource	Government of India, New Delhi	Van Nostrand Reinhold Company,	1999
4	Design Fundamentals in Architecture	V.S.Pramar	Somaiya Publications, New Delh	1973



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### HISTORY OF ARCHITECTURE - I (ANCIENT CIVILIZATION) (HOA- I)

COURSE CODE	22AR1102	MODE	R	LTPSIN	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand Primitive Architecture and Ancient settlements in pre-Historic times and get knowledge on the Ancient River valley civilizations in the world.	2	PO3
CO2	Understand the Architecture and Planning of Ancient River Valley Civilizations	2	PO3
CO3	Understand the Culture and its influence on Architecture in Ancient Greece and Ancient Rome and its impact on Western Architecture	2	PO4, PSO2
CO4	Understand the Built forms in Ancient Greece and Ancient Roman Empire and its monumental Urban Architecture	2	PO4

#### Syllabus

Module 1	Prehistoric / Primitive Architecture: Introduction to Palaeolithic & Neolithic Culture. It's Impact on Built forms. Primitive Settlements, Shelters, Megaliths, Memorials and Burial Systems. Ancient Settlements: Jericho, CatalHuyuk, Hassuna, Skara Brae. Ancient River Valley Civilizations: Nile River, Tigris and Euphrates Rivers, Yellow River and Indus River. Topography, Climate, Religion, Culture and Political System. Character of Settlements and Typology of Shelters/Buildings.
Module 2	Ancient River Valley Civilizations: Places of importance Egyptian Architecture: Great Pyramid of Giza, Temple of Amon Ra, Karnak, Temples of Abu Simbel, Nubia. Mesopotamian Architecture: Ziggurat of Urnammu-Ur (Sumerian Architecture), Palace of Sargon-Khorsabad (Assyrian Architecture), City of Babylon and Ishtar Gate (Neo-Babylonian Architecture), Palace at Persepolis (Persian Architecture). Chinese Architecture: Imperial Palaces, Traditional Chinese Gardens, Religious structures, Altars and Temples, Tombs and Mausoleums. Indus Valley Architecture: Harappa& Mohenjo-Daro settlement Architecture and Town planning.
Module 3	Classical Period: GREECE Topography, Climate, Religion, Culture and Political System. Construction Materials, Techniques and Structural Systems. Greek Orders, Residences, Urban Spaces, Temples and other Public Buildings. Classical Period: ROME Roman History: Republic and Empire. Topography, Climate, Religion, Culture and Political System. Construction Materials, Techniques and Structural Systems. Roman Orders, Urban Spaces,



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	Temples, Basilicas, Amphitheatres & Residences.
Module 4	Classical period Greece: Places of importance Athens, Agora, Acropolis, Patheon, Stoa, Bouleuterion, Threates. Classical Period Rome: Places of Importance Forum Romanum, Coliseum, Pantheon, Circus Maximus, Thermae of Caraculla

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"History of World Architecture – Series", Harry N. Abrams,	Harry N. Abrams	Inc. Pub., New York, 1972.	1972
2	"History of World Architecture – Series"	Lloyd S. & Muller H. W	London	1986
3	"Man, the Builder"	Gosta, E. Samdstrp	Mc.Graw Hill Book Company, New York,	1970
4	"Western Civilisation"	Webb and Schaeffer	Volume I; VNR: NY	1962
5	"Architecture – The Natural and the Manmade"	Vincent Scully	Harper Collins Pub	1991



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### ARCHITECTURAL DRAWING - I (ADG I)

COURSE CODE	24AR1152	MODE	R	LTPS	0-0-3-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the fundamentals of drawing and drafting, including construction and development of surfaces for various basic 3D shapes, as well as the representation of various building components and related elements.	2	PO1, PO3, PO4, PSO1
CO2	Comprehend the representation of a building in plan, elevation, and sections, and be able to prepare simple measure drawings.	2	PO1, PO5

#### Syllabus

Module 1	Fundamentals of Drawing and its practice, Introduction to drawing equipment, familiarization, use and handling. Drawing sheet sizes, title panels, legends, layouts and composition, construction of lines, line value, line types, Architectural lettering; Basic geometry – Shapes & Forms; Study of illusions. Pattern Drafting; Basic 2-D Shapes; Use of “SCALES” in drawings (Increasing & Decreasing); Orthogonal Projections, 3D projections – Isometric View, Oblique View, Axonometric, Bi-Metric, Tri-Metric, Exploded view. Architectural Representation of components and materials/textures, measured drawing of building components and furniture – Doors, Windows, Wardrobe, Drafting table etc.,
Module 2	Measured drawing of a simple form/space. Comprehend the representation of a building in plan, elevation, and sections, and be able to prepare simple measure drawings.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Geometrical Drawing for Art Students	Morris IH	Orient Longman, Madras	2004
2	Architectural Graphics	Francis D. K. Ching	John Wiley and Sons	2004
3	Architectural Drawing	Fraser Reekie, Reekie's	Edward Arnold	1995





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### HISTORY OF ARCHITECTURE - II (HOA - II)

COURSE CODE	22AR1205	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand Vedic culture and study the origins of Early Hinduism, Jainism, Buddhism, and its rudimentary forms of construction.	2	PO4
CO2	Understand Hindu forms of worship, concept, symbolism and to get knowledge on the metaphysical plan of Temple Architecture.	2	PO4
CO3	Understand and to get knowledge on the temple architecture and temple towns during various periods and empires in South India and North India.	2	PO2, PSO2
CO4	Understand and to know the character and Architecture of temples of South India and North India in detail.	2	PO3

#### Syllabus

Module 1	<p><b>Early Hindu, Jain, and Buddhist Architecture</b></p> <p>Origin of Early Hinduism. Vedic Culture, Vedic village &amp; Rudimentary forms of Bamboo Structures. Origins, Thought, Art and Culture of Jainism &amp; Buddhism. Character of Jain Architecture.</p> <p>Hinayana and Mahayana Styles of Buddhist Architecture. Evolution of Built form based on form &amp; function. Architectural Features like Stupas Chaityas, Viharas, Stambhas, Toranas, Railings etc.</p> <p><b>Places of Importance:</b></p> <p>Ashokan Pillar-Sarnath, Rock Cut Caves-Barabar; Sanchi Stupa-Sanchi Rock Cut Architecture; Great Stupa at Amaravati, Ajanta &amp; Ellora; Karli Caves, Rani Gumpha-Udaigiri; Takht I Bahi- Gandhara</p>
Module 2	<p>Evolution of Hindu Temple Architecture</p> <p>Hindu forms of worship – evolution of temple form – Concept, meaning, symbolism, ritual and social importance of temple.</p> <p>Classification of Indian temples - Elements of temple - Metaphysical plan of Temple Architecture Early shrines of the Gupta and Chalukyan and Rashtrakuta periods.</p>



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	<b>Places of Importance:</b> Tigawa temple - Ladh Khan and Durga temple, Aihole - Papanatha, Virupaksha temples, Pattadakal -Kailasanatha temple, Ellora.
Module 3	<b>Temple Architecture - Southern India</b> Brief history of South India and its Characteristics–Different phases of South Indian Temple Architecture, Relation between Bhakti period, Dravidian Order-Evolution and form of gopurams, Temple architecture of temple towns <b>Temple Architecture - Northern India</b> Brief history of North India and its Characteristics –Different phases of North Indian Temple Architecture -Sub schools developed under the style. Architectural production and salient features in Orissa, Gujarat, Madhya Pradesh and Rajasthan.
Module 4	<b>Southern India- Places of Importance</b> Rock cut productions under Pallavas: Rathas of Mahabalipuram, Shore temple- Mahabalipuram Chola Architecture: Brihadeeswara Temple, Thanjavur, Pandyan and Nayaka Architecture: Meenakshi Temples, Temple Towns :Madurai. <b>Northern India- Places of Importance</b> Lingaraja Temple- Bhubaneswar, Sun temple-Konarak, Somnatha temple-Gujarat, Kandariya Mahadev temple-Khajuraho group, Madhyapradesh, Dilwara temple, Mt. Abu

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	The Hindu Temple	George Michell	BI Pub., Bombay	1977
2	Temple culture of south India	Parameswaran Pillai V.R.	Inter India Publications	1990
3	Temple Towns of Tamil Nadu	George Michell Ed	Marg Pubs	1995
4	Temples of Tamil Nadu Works of Art	Raphael D.	Fast Print Service Pvt Ltd.	1996



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### MODEL MAKING WORKSHOP (MMW)

COURSE CODE	24AR1154	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand cutting and sticking for making a model, Components of detailed model, Representing hills, Plateau, water bodies, furniture's, Cars	2	PO7, PO8
CO2	Understand different materials and apply the acquired knowledge and create a model Independently by choosing appropriate material and techniques.	2	PO2, PO6, PSO2

#### Syllabus

Module 1	Detail description of tools used in Model making - Basic surface development - introducing Techniques used for cutting and sticking - Different materials (Paper, Thermocol / Coir, Foamboard) - Making models of Cube, Cylinder & Sphere - Making Block Models. Model making of Site with different levels using ethoflex or corrugated sheet - Different ways of representing trees, vehicles, streetlights in architectural model, Blown up model along with furniture. Advanced Surface development (half cuts, reverse cut, elevation and slabs etc.), Detailed model with doors, windows, balconies and other architectural elements, making of detailed base showing roads, pathways, greens, plinth and water bodies.
Module 2	Exploring and experimenting with tensile materials -Bamboo, wood, metal frame works. Model making of any Architectural Structure

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Architectural Model making	Nick Dunn	Laurence King Publishing, 2nd edition	2014
2	A Guide to Professional Architectural and Industrial Scale Model Building	Graham D. Pattinson	Prentice Hall, 1st Edition	1982



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### ARCHITECTURAL DRAWING - II (AD-II)

#### (3D FORMS AND COLOR)

COURSE CODE	24AR1255	MODE	R	LTPS	0-0-3-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the concepts and Scientific Methods of Perspective Drawing and apply Rendering Techniques, principles of Shade & Shadow and Construct sociography of Architectural Structures	2	PO7, PO8, PO10, PSO2
CO2	Understand identification and measuring of specific Architectural Details of Historically significant, Buildings and the presentation techniques of drawings	2	PO7, PO10, PSO2

#### Syllabus

Module 1	Rendering Techniques using various mediums – Dot rendering, Line rendering, Colour rendering etc., Introduction to perspective Drawing & Sketching – One-point perspective, two-point perspective, three-point perspective – Simple 3D forms and building interiors; Exercises on any building interior/exterior view and rendering. Introduction to Sociography – Shade, shadow casting on horizontal and vertical surfaces – Ground, different projections/depressions in walls, Chajjas; Sociography for 3D forms.
Module 2	Introduction to Building Documentation – Building typologies – Vernacular, Historical prominent, Heritage, Public Buildings, Religious Structures. Report presentation on building documentation with appropriate sheet work.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Geometrical Drawing for Art Students	Morris IH	Orient Longman, Madras	2004
2	Architectural Graphics	Francis D. K. Ching	John Wiley and Sons	2004
3	Architectural Drawing	Fraser Reekie, Reekie's	Edward Arnold	1995
4	Rendering with Pen and Ink	Arthur Leighton Gupill	Watson-Gupill; New edition	1997



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### HISTORY OF ARCHITECTURE- III (HOA -III)

#### (MEDIEVAL PERIODS)

COURSE CODE	22AR2108	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BT L	PO Mapping
CO1	Understanding the evolution of early Christian and Medieval periods its Architecture and socio-political changes	2	PO4
CO2	Understanding Renaissance and Mannerist Architectures and their practices in Europe, growth of nations and styles of Baroque and Rococo	2	PO6, PSO2
CO3	Understanding the Islamic principle's philosophy & its relevance to various built forms and the influence of Islamic architecture on Indian subcontinent Architecture of various provinces under sultanate rule	2	PO3
CO4	Understanding of Architectural developments during Mughal Dynasty Study of cross culture influence and evolution of secular architecture in princely states	2	PO3

#### Syllabus

Module 1	<b>Early Christian and Medieval Periods:</b> Birth and spread of Christianity – transformation of the Roman Empire – early Christian worship and burial. Church planning – basilica concept: S. Hagia Sophia, Constantinople; St. Marks, Venice. The Carolingian Renaissance – Feudalism and rural manorial life – Papacy – Monasticism – Craft and merchant guilds. Romanesque churches – Development of vaulting – Pisa Group – British Cathedrals. Political and social changes: Re-emergence of the city – Crusades - Scholasticism. Development of Gothic Architecture Church plan, structural developments in France and England – Notre Dame.
Module 2	<b>Renaissance, Mannerism and Post Renaissance Movements:</b> Idea of Renaissance and Humanism – Development of thought – Renaissance architecture: Brunelleschi and rationally ordered space – ideal form and the centrally planned church: Alberti and Donato Bramante – Merchant Prince palaces: Palazzo Ricardi– Villas of Palladop: Villa Capra Vicenza – Mannerist architecture: The Renaissance in transition – Michaelangelo: Library at S. Lorenzo, Florence, Capitoline Hill. Protestantism – French Revolution – Monarchy and growth of nations. Roman Baroque churches: The central plan modified – St. Peters, Rome; French Baroque: Versailles – English baroque – Sir Christopher wren; St. Paul's London – Rococo Architecture.
Module 3	<b>Islamic Architecture in India and Delhi Sultanate:</b> History of Islam: birth, spread and principles - evolution of building types in terms of forms and functions: mosque, tomb, minaret, madarasa, palace, caravanserai, market - character of Islamic architecture:





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	principles, structure, materials and methods of construction, elements of decoration, colour, geometry, light. Islamic architecture in India: sources and influences. Establishment of the Delhi Sultanate- evolution of architecture under the Slave, Khalji, Tughlaq, Sayyid and Lodhi Dynasties – tombs in Punjab- important examples for each period.
Module 4	<b>Mughal Architecture:</b> Mughals in India- political and cultural history- synthesis of Hindu-Muslim culture, Sufi movement - evolution of architecture and outline of Mughal cities and gardens under the Mughal rulers: Babur, Humayun, Akbar, Jahangir, Shahjahan, Aurangzeb- important examples- decline of the Mughal empire. Cross Cultural influences across India and secular architecture of the princely states: Oudh, Rajput, Sikh, Vijayanagara, Mysore, Madurai- important examples.

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	“Architecture of the Islamic World - Its History and Social meaning”	George Mitchell	Thames and Hudson, London	1978
2	“Islamic Architecture- Form, Function and Meaning”	Robert Hillenbrand	Edinburgh University Press	1994
3	“The History of Architecture in India”	Christopher Tadgell	Penguin Books (India) Ltd, New Delhi	1990
4	“History of Mughal Architecture”, Vols I to III -	R.Nath	Abhinav Publications, New Delhi	1985





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### SITE SURVEY AND ANALYSIS

COURSE CODE	23AR2110	MODE	R	LTPS	0-0-0-3	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding Surveying using Chain and Compass. Understanding Surveying using Dumpy Level and Theodolite.	2	PO4, PO8, PSO2
CO2	Applying survey practices in field using Chain, Compass, Dumpy Level, Theodolite, Total Station and Alidade	3	PO4, PO10, PSO2

#### Syllabus

Module 1	Introduction: Reading of survey Maps, understanding of features and undulations of Ground. Scales used in Plotting. Study of landforms, topography and contours, slope analysis, grading process; graphic representations of landforms. Principles, definitions, units, scales, symbols, and instruments used in Surveying, common errors in surveying and their corrections. Linear Measurements: Measurements in horizontal plane, linear measurements with chain & tape, setting out & survey stations, survey accessories, survey lines, open & closed traverse, chaining & offsetting, direct & indirect ranging, logbooks, field boundaries, field area estimation. Compass survey, bearings & angles, local attractions, errors in compass survey.
Module 2	Contours in Landforms: Characteristics, contour intervals, direct & indirect methods of contouring, block contour surveys, profile levelling, longitudinal & traverse cross sections, gradients, contouring methods & equipment, plane-table, plotting contours & profiles, estimating areas & volumes. Sloping Landforms and Levelling: Measurements along sloping landforms, principles, definitions, methods, instruments, & staff required for levelling, simple & differential levelling, dumpy level, adjustments, hand signals, reduced levels, rise & fall methods, errors in levelling, level tube & barometric levelling. Precision methods in Landforms Survey & Measurement Theodolite surveying, temporary adjustments, horizontal & vertical angles, closing errors and balancing traverse, automated & digital surveying, Total station, G.P.S, Aerial Photography, digital levels, auto-levels, DGPS and Drone surveys..

#### Reference Books

Sl No	Title	Author(s)	Publisher	Year
1	Surveying	B.C. Punmia, Ashok K. Jain, Ashok Kr. Jain, Arun Kr. Jain	Firewall Media,	2005



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2	Text of surveying	P.B.Shahani	Oxford and IBH Publishing Co	1980
3	“Urban Planning Design Criteria	Joseph De.Chiarra and Lee Coppleman	Van Nostrand Reinhold C	1982
4	Site engineering for landscape Architects	Storm Steven	John wiley & Sons Inc	2004
5	Landscape Planning for Energy Conservation	Gray, O., Robinetl	Van Nostrand Reinhold, New York	1984



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### CONTEMPORARY ARCHITECTURE (CA)

COURSE CODE	24AR2214	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the Architecture and Planning of various Cities during Medieval Age. Understand the Culture and Built Forms in Pre – Independence (Colonial Rule) and Post-Independence of India.	2	PO3
CO2	Understand the Theories of current Architect practices and their applicability in meeting present day Needs.	2	PO6, PSO2
CO3	Understand Cubism & Constructivism along with various Building styles of Early Modern Architects. Understand Post Modernism and International Style along with Ideas and Works of Various Architects of that time	2	PO4
CO4	Understand Critical Regionalism and other alternative practices. along with Ideas and Works of Various Architects of that time. Understand Deconstructivism along with Forms, Ideas and Concepts followed by Various Architects in their works	2	PO3

#### Syllabus

Module 1	<p>Influenced Indian Architecture</p> <p>Transformation of Indian traditional architecture due to influence of various Indian occupied rulers like Islamic, Mughal, Deccan kings, Vijayanagar empire, etc.,</p> <p>Lessons from public architecture (place designing like Market places, palaces, tombs, forts, public gathering places). Influence of Colonial architecture in transforming the building design and its elements.</p> <p>Post Independent &amp; Modern Architecture in India</p> <p>Indo-Saracenic architecture. Modern architecture influence on Indian Architecture near to post- Independence times. New Delhi, Kolkata, Chennai, Princely states Architecture of India (colonial architecture). International trends like Brutalist architecture, Cubism, etc., influence on Indian architecture.</p> <p>Contributions of BV Doshi, Raj Rewal, Sirish Beri, Nari Gandhi, Achyut Kanvinde, Anantha Raje, Charles Correa, Laurie Baker, etc., to Indian Architecture.</p>
Module 2	<p>Contemporary Indian Architecture</p> <p>Contemporary theories in Indian Architects like Minimalism, Expressive, Exposed Brick, Earthen Architecture, Sustainable Architecture, etc. The concepts of contemporary architects like Chitra Viswanath, Brinda Somayya, Sanjay Mohe, Jaisim, Bimal Patel, Sirish Beri, etc.,</p> <p>Redefining Traditional and Indian Vernacular styles. Change of Role of Courtyard, opening in the buildings, Natural lighting, Neighborhood &amp; High-rise Buildings designing. Contemporary public buildings study.</p>



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Module 3	Early Modern Architecture: Study of various movements. Baroque-Rococo, Cubism, Constructivism, Brutalist Architecture, Neo-Classicism etc., Study of works of Architects: Philip Johnson, Robert Venturi, Frank Lloyd Wright, Mies Van Der Rohe, Oscar Niemeyer, Alvaro Siza, Le Corbusier, Louis Kahn, Richard Neutra, Richard Meier. Later Modern Architecture Post modernism, Various Design & Art schools, and their Philosophies like Bauhaus, Change of ideologies and conceptualization, and international style. Study of the ideas and works of Architects like Paul Rudolph, Robert Venturi, I.M. Pei, Kenzo Tange, Minoru Yamasaki, Kisho Kurokawa, Richard Meier, Toyo Ito.
Module 4	Alternative Practices and Ideas African Architecture, Critical regionalism, works and ideas of Hassan Fathy, Geoffrey Bawa, Tadao Ando, Laurie Baker and Paulo Soleri. 22nd Century Architecture Expressionism, Deconstructivism – Works of Zaha Hadid, Daniel Libeskind, Frank Gehry, Peter Eisenman, Santiago Calatrava and his structural concepts- New forms and ideas of Norman Foster, Greg Lynn, Rem Koolhaas. Contemporary concepts of Earthships, Energy Efficiency, Sustainability, Floating Architecture, Biomimetic Architecture.

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Architecture Theory	Michael Hays	CBA	1999
2	Deaths and Life of Great American Cities	Jane Jacobs	Vintage	2003
3	Hassan Fathy	James Steele	Academy Editions	1985
4	Charles Correa	Kenneth Frampton	The Perennial Press	1998
5	Balkrishna Doshi, An Architecture for India	William Jr. Curtis	Rizzoli	1988



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### BUILDING BYE LAWS AND OFFICE MANAGEMENT (BBOM)

COURSE CODE	23AR3117	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the importance of Building codes in different zones and learning about the terminologies	2	PO1, PO3, PSO1
CO2	Understand the different norms from National Building Code of India	2	PO1, PO5, PSO1
CO3	Understand the basic need of building bye laws of local region and to learn the terminology. To be introduced to Energy Conservation	2	PO1, PO3, PO4, PSO1
CO4	Understand basis office procedure and management techniques in architecture	2	PO3, PO4, PSO1

#### Syllabus

Module 1	Introduction to building codes and norms: Introduction to Building codes, bye laws and regulations, their need and relevance. Overview of basic terminologies, nature of building codes in special regions like heritage zones, air funnels, environmentally sensitive zones, disaster prone regions, coastal zones, hilly areas, etc.
Module 2	Study of building regulations: Study of structure of Building bye laws, National Building Code etc. General building requirements, building classifications and permissible uses. Norms for exterior and interior open spaces, setbacks and margins, norms for building projections in open spaces, considerations in FAR, guidelines for open green areas. Plinth, habitable rooms, kitchen, wet areas, mezzanine, storerooms, elevated parts like chimneys, parapets etc. Means of access, norms for access widths for various types of buildings, requirements of parking spaces, Equivalent Car Space (ECS), standards for turning radius, access to service areas.
Module 3	Study the Role and functions of the administrative and Development authorities- Vijayawada Municipal Corporation, CRDA (Capital Region Development Authority) etc and the local regulations for building permissions, architectural control and provision of building services, regulations for super structures, building height regulations, regulations for multi storied buildings etc. Introduction of Energy Conservation Building Code (ECBC): Eco Niwas Samhita 2018, Part I and Eco Niwas Samhita 2021 (code compliance)
Module 4	Office management: Architectural office, architect, contractor, client relationships Office correspondence, filing and record keeping Human resource management. Scale of charges

#### Reference Books:





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Sl No	Title	Author(s)	Publisher	Year
1	Handbook of Professional Documents 2020,	by Council of Architecture, India	Council of Architecture, India	2020
2	Model Building ByeLaws 2016,	Municipal Administration and Urban Development D	Government of Andhra Pradesh	2016





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### SPECIFICATION, ESTIMATION, AND COSTING (SEC)

COURSE CODE	23AR3222	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of data required and methods of estimation	2	PO1, PSO1
CO2	Applying various methods, estimate different quantities.	3	PO3, PSO1
CO3	Understanding of the types of estimates and costing	2	PO1, PO3, PSO1
CO4	Understanding various specifications and terminology used.	2	PO7, PO8, PSO1

#### Syllabus

Module 1	Introduction: Introduction to Quantity estimation - costing and specifications related to building projects - Definition and purpose of Estimating and Costing - Procedure of estimating or method of estimating - data required to prepare an estimate (Drawings/ specification/ rates) - complete estimate structure.
Module 2	Measurement of Materials and Works: Introduction to measurement of various construction work items - importance and significance in construction projects - Units of measurement, rules for measurement - Methods of taking out quantities: long wall and short wall method, centre line method, partly centre line, cross wall method - Standard modes of measurement as per Indian Standards for various work items.
Module 3	Types of Estimates and Costing: Preliminary/Approximate Quantity Estimates: Importance & purpose of Preliminary / Approximate estimates, Plinth area method, Cubical contents method and centre line method and their preparation. Types of approximate estimates, basic differences, and advantages. Detailed Quantity Estimation: Types of detailed estimates and their application, Methods of deriving detailed quantities for various construction work items. Preparation of Detailed estimate, Work items as per construction stages: Foundations, Superstructure, Finishing works in a simple building. Description & significance of Items in Bill-of-Quantities (BOQ).
Module 4	Costing: Introduction, meaning, purpose, methods of estimating cost of construction for various work items, cost indices, rates of labour and material, analysis of rates, preparation of abstract of estimated cost, use of CPWD schedule of rates. Deriving construction cost as per BOQ. Specifications: Introduction, Definition, importance and purpose of specifications, impact on costing. Principles and practices. Types of specifications. Knowledge of manufacturers' specifications for construction materials/ products. Specification of common building materials including carriage & stacking of materials. Specifications for a simple building. Standard specifications of BIS. General abbreviations used in specifications. Specification of new building materials.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
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1	Textbook of Estimating and Costing.	Birdie,G.S.	Dhan Patrai Publishing.	2005
2	Estimating, Costing, Specification & Valuation	Chakraborty, M.	M Chakraborty	2006
3	C.P.W.D. Standard Schedule of Rates.		C. P.W.D.	2021
4	Estimating and Costing in Civil Engineering.	Dutta, B. N.	UBS Publishers, Distributors Ltd.	1998 (24th Ed.)



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### HUMAN SETTLEMENT AND PLANNING (HSP)

COURSE CODE	23AR2223	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the various elements of Human Settlements and the classification of Human Settlements.	2	PO2
CO2	Understand familiarize the students with Planning concepts and process in Urban and Regional Planning.	2	PO3
CO3	Understand the changing dynamics of Urban Form and it's planning according to urban transformation	2	PO3, PO9
CO4	Understand the interrelationship between Human Settlements structure and Social Dynamics.	2	PO3, PO9, PSO2

#### Syllabus

Module 1	Origin of Human Settlements – Factors influencing the growth and decay of human settlements, Elements of Human Settlements; Type and classification of settlements – Urban and Rural.
Module 2	Introductory study of the development of various settlement forms – Before and after Industrial Revolution. Theory of 'EKISTICS'; Planning concepts and their relevance to Indian Planning practice – Ebenezer Howard (Garden City Concept), Patrick Geddes (Geddisian Triad), C.A Perry (Neighbourhood Planning), Radburn Theory, Satellite Towns, City Beautiful; Concept and Case studies.
Module 3	Town planning & Regional theories like Garde City, city beautiful movement, Linear city, Concentric circle theory, sectoral theory, Christaller weber central place theory, etc., Brief Introduction to the town planning organization in India – Various levels of planning, National, Regional, Urban, Rural, Local etc. differences and relationships between them; Ecological, Social and Economic aspects of town planning in India; Definitions and terms in Indian context – Zonal plan, Master Plan, Land Use Plan, Development regulations, regional plans, etc.
Module 4	Urbanization – Fact, elementary theories and problems related to urbanization with social reference to India, Emergence of new forms of developments, Transportation, and communication. – Potentials and limitations of roadways, Railways, Airways and Waterways in development of settlements; Problems and potentials. Concepts of SMART cities, Utopian Cities, IOT facilities in Urban Planning, Modal Split, NMT, Pedestrianization of cities etc.,



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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	An Introduction to the Science of Human Settlements	C.L.Doxiadis, Ekistics	Hutchinson, London,	1968
2	Housing and Urban Renewal	Lang, J. T.	George Allen and Unwin, Sydney	2005
3	Ministry of Urban Affairs and Employment	Government of India, New Delhi	Government of India, New Delhi	1999
4	Urban Development Plans: Formulation & Implementation	Government of India, New Delhi	Government of India, New Delhi	1996.
5	Master Plan for Madras Metropolitan Area, Second Master Plan,	Madras Metropolitan Development Authority	Madras Metropolitan Development Authority	2007



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### SYLLABUS OF COURSES UNDER PROFESSIONAL ELECTIVE COURSES (PEC)



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### PE1: VERNACULAR ARCHITECTURE (VA)

COURSE CODE	24AR3120A	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the Vernacular Architecture, its Approaches & Concepts.	2	PO4
CO2	Understand the Vernacular styles of Buildings in Western, Northern & North-Eastern India.	2	PO6, PSO2
CO3	Understand the Vernacular Architectural Styles of Southern India.	2	PO3
CO4	Understand the Influence of Western world on Vernacular Architecture.	2	PO3

#### Syllabus

Mod ule 1	Definition and classification of Vernacular architecture – Vernacular architecture as a process – Survey and study of vernacular architecture: methodology – Sense of Identity, Continuity, Socio-Cultural and Contextual responsiveness of vernacular architecture: an overview. Approaches and Concepts, Different approaches, and concepts to the study of vernacular architecture: an overview of historical outline, religious context, and social customs aesthetic, architectural, temporal, political and anthropological studies in detail.
Mod ule 2	Vernacular tradition in building serves in creating a balance between nature and society, optimal utilization of natural resources and of local skills and craftsmanship. Vernacular Architecture Of The Western, Northern & North-East Regions Of India, Forms spatial planning, cultural aspects, symbolism, colour, and art, materials of construction and construction technique of the vernacular architecture of the following: Deserts of Kutch and Rajasthan; Havelis of Rajasthan, Rural and urban Gujarat; wooden mansions (havelis); Havelis of the Bohra Muslims, Geographical regions of Kashmir; house boats, Houses of Sikkim, Arunachal Pradesh, Mizoram, Etc., housing Styles.
Mod ule 3	Vernacular Architecture of South India, Forms, spatial planning, cultural aspects, symbolism, art, colour, materials of construction and construction technique, proportioning systems, religious beliefs and practices in the vernacular architecture of the following: Kerala: Houses of the Nair & Namboothri community; Koothambalam, Padmanabhapuram palace etc., Tamil Nadu: Houses and palaces of the Chettinad region; Aghrahams etc., Karnataka: Houses of Melkote, Madikere etc., Andhra Pradesh – Iktas houses in Nalgonda etc.





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Module 4	Western Influences on Vernacular Architecture of India, Colonial influences on the Tradition Goan house - Evolution of the Bungalow from the traditional bangla, Victoria Villas – Planning principles and materials and methods of construction. Settlement pattern and housing typologies in Pondicherry and Cochin.
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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Haveli – Wooden Houses and Mansions of Gujarat	V.S. Pramam	Mappin Publishing Pvt. Ltd., Ahmedabad	1989
2	Architecture of	Kulbushanshan Jain and Minakshi JainMud	Aadi Centre, Ahmedabad	1992
3	Indian Architecture according to Manasara Silpasastra,	AcharyaPrasanna K	Indian, India, Patna:	1979 (Reprint of 1928 ed.).
4	The tradition of Indian Architecture Continuity, Controversy – Changes since 1850	G.H.R. Tillotsum	Oxford University Press, Delhi	1989
5	VISTARA – The Architecture of India,	Carmen Kagal	Pub: The Festival of India	1986



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### PE1: SUSTAINABLE ARCHITECTURE (SA)

COURSE CODE	24AR3120B	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Remember the Fundamentals of Sustainability and its impact on Environment	1	PO7, PO8, PSO2
CO2	Understanding the new concepts and terminologies of sustainability	2	PO6, PO8, PO9, PSO2
CO3	Understand the importance of site planning and energy, water efficient landscaping as an important tool in sustainable architecture	3	PO7, PO8, PSO2
CO4	Apply National and International Case studies of Sustainable Architecture through research summary on GRIHA, LEED and other Certification	3	PO7, PO8, PSO2

#### Syllabus

Module 1	Fundamentals of Sustainable Architecture - Characteristics of sustainable architecture, Sustainable buildings, parameters of sustainable buildings.
Module 2	Concepts and Terminology of Sustainable Architecture - fundamentals of passive designing and climatology, thermal comfort, visual comfort, acoustic comfort, Climate Consultant. Green buildings definitions and categories, indicators of green buildings rating systems, Terminologies related to sustainable buildings- carbon footprint, life cycle analysis, Urban Heat Island, Development Footprint
Module 3	Site planning and Energy, Water Efficient. Water – estimating the use, reductions in consumption, recycling, reuse, landscape requirement, strategies, and technology for water conservation. Site development- site selection, UHI, Public Transport, vegetation, development footprint, storm water runoff, SRI- Application in Design Studio and Marking according to their application.
Module 4	Research Summary on Sustainable Architecture Rating Systems – Case studies on National and International Projects of GRIHA, IGBC, LEED ETC.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Sustainable urban design: an environmental approach	Thomas, Randall & Fordham Max	Taylor and Francis	2009
2	Passive and Low Energy Cooling of Buildings	Givoni Baruch	VNR, New York	1994
3	Green design: design for the Environment	Mackenzie Doroth	Laurence King, London	1997



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### PE2: LANDSCAPE DESIGN STUDIO (LDS)

COURSE CODE	23AR3224A	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Apply skills for a sustainable and aesthetically pleasing outdoor spaces that enhance the built environment .One Casestudy for practical knowledge	3	PO6, PO7, PO8, PSO1
CO2	Create a landscape design project . Minimum two projects at different level - Local, urban and incorporate different types of parameters like Sustainable landscape, Climate positive design ,Climate Responsive design etc.	6	PO6, PO7, PO9, PSO1

#### Syllabus

Module 1	<p>Understand and Apply Design Principles: Students will be able to demonstrate a fundamental understanding of design principles and apply them effectively in landscape design projects. They will develop skills in creating visually appealing compositions, balancing elements, and establishing focal points in outdoor spaces.</p> <p>Conduct Site Analysis and Synthesize Findings: Students will learn how to conduct a thorough site analysis, considering factors such as topography, climate, soil conditions, and existing vegetation. They will be able to synthesize this information to inform design decisions and create site-specific solutions that are sensitive to the local context.</p>
Module 2	<p>Communicate and Present Design Concepts: Students will refine their skills in effectively communicating and presenting their design concepts. They will learn to use visual representation techniques such as sketches, renderings, and digital tools to clearly convey their ideas. They will also develop the ability to articulate design intentions and concepts through written and oral communication, enabling effective collaboration with clients and stakeholders.</p> <p>Create Functional and Sustainable Design Solutions: Students will develop the ability to design outdoor spaces that are not only aesthetically pleasing but also functional and sustainable. They will learn to incorporate elements such as hardscapes, planting schemes, circulation patterns, and amenities to enhance usability and meet the needs of the users while considering environmental sustainability.</p>

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Landscape Architecture: A Manual of Environmental Planning and Design"	Barry Starke	McGraw-Hill Education	2006
2	Drawing for Landscape Architects: Construction and Design Manual	Sabrina Wilk	Birkhäuser Architecture	2018



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### PE2: MODULAR CONSTRUCTION STUDIO (MCS)

COURSE CODE	23AR3224B	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Applying methods to develop an understanding of space design at the local level. Additionally, applying techniques to integrate various knowledge systems to formulate a design proposal of a practical scale, along with implementing the process used for the same.	3	PO6, PO8
CO2	Creating opportunities for students to comprehend the area, scale, design, and implementation factors involved in Modular construction. Additionally, create projects for students to incorporate Modular construction, with a mandatory requirement for conducting case studies and documentation of Modular Construction.	6	PO6, PO7, PO9

#### Syllabus

Module 1	Principles of Modular construction, Objectives, Types of Modular construction, Delivery methods, Modular building process, Pros & Cons of Modular construction.
Module 2	Identify the participants including customers, Manufacturers, Installers, etc. Design Phase – Site evaluation, design considerations, Scope of work, building codes & specifications. Pre-construction and construction phases – Objectives, Construction documents, Estimation and budgeting, Scheduling, supply chain management of modular construction, Quality control and Assurance. Safety programs and standards, Tools plus machinery and heavy equipment needed.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Introduction to Commercial Modular Construction,		Modular Building Institute,	2019
2	Design for Modular Construction: An Introduction for Architects,		MBI,	2019



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### PE3: APPROPRIATE CONSTRUCTION TECHNOLOGIES

COURSE CODE	23AR3225A	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the alternative building materials, applying cost-effective materials and techniques to resolve environmental problems.	2	PO2, PO3
CO2	Understanding the indigenous construction materials and techniques for building resilience and disaster mitigation	2	PO2, PO3, PSO2
CO3	Understanding the materials and techniques for energy efficient building construction	2	PO2, PO3
CO4	Applying Building Information Modelling in modern construction industry	3	PO6, PSO2

#### Syllabus

Module 1	Apply cost-effective building materials and techniques in construction, Study of the availability of Materials, Comprehend the importance of Recycling used Materials, study different Government departments researching alternative building materials and techniques,
Module 2	Learning about current architectural practices on alternative building materials and techniques. Identify Environmental Issues. Vernacular construction practices as suitable techniques to make resilient buildings. Various types of construction details of foundations, soil stabilization, retaining walls, and plinth fill, flooring, wall, opening, roof, parapets, boundary walls, staircases, etc. Local practices for disaster resistance and traditional regional responses.
Module 3	Building resources: Passive energy system design, building envelope, Building orientation and components of building fabric, Curtain wall, sourcing, and recycling of building materials. Use of alternative building materials and technologies for making the building energy efficient and less resource Dependent.
Module 4	Dry construction technology for lesser use of water and other resources. Introduction to Building Information Modelling and its Application to the building construction industry. Building automation systems - approaches, application – lighting, security, fire detection, office automation, vertical transportation, surveillance. Smart construction, Autonomous equipment, Future Potential for AI in Construction.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Alternative Building Materials and Technologies	K S Jagadeesh, B V Venkatta Rama Reddy & K S Nanjunda Rao	New Age International Publishers	2014





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### PE3: ENERGY EFFICIENT BUILDINGS (EEB)

COURSE CODE	23AR3225B	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the concepts and terminology of SMART, INTELLIGENT and NET ZERO buildings.	2	PO1, PSO1
CO2	Understand the importance of relevance of water in built environment	2	PO6, PSO1
CO3	Understand Building Envelope installations and Dynamic facades Simulation	2	PO3, PSO2
CO4	Understand Lighting, Appliances and Occupant Behaviour and introduction to simulation and analysis software	2	PO1, PSO2

#### Syllabus

Module 1	<b>Concepts:</b> Smart Buildings, intelligent Buildings and Net Zero buildings etc – Concepts, terminology, opportunities, challenges and case studies around the world, Industry 4.0 – IOT, AI etc.
Module 2	<b>Energy Efficiency in built environment:</b> Energy Efficiency through techniques and technology, passive design strategies and renewable energy implementation- HVAC and Energy Management, Energy Audit.
Module 3	<b>Building Envelope:</b> Role of Building Envelope, Types of insulation material, Principles of Insulation installation, Thermal Bridging, Advances in Building Envelope Design in Energy Conservation. Dynamic Façade as per climate and location - Simulation
Module 4	<b>Lighting, Appliance and Occupant Behaviour:</b> Principles, Appliances and Equipment, Smart Technologies for energy Monitoring and control, Human Factors, Strategies for encouraging Energy conscious Behaviour, Case studies and Best Practices

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Energy-efficient Electrical Systems for Buildings	Moncef Krarti	CRC Press	2023
2	Sustainability through energy-efficient buildings	Amritanshu Shukla	Taylor & Francis; CRC Press	2018
3	Heating and cooling of buildings: principles and practice of energy efficient design	T. Agami Reddy, Jan F. Kreider, Peter S. Curtiss, Ari Rabl	Taylor & Francis	2017





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### PE4: ARCHITECTURAL CONSERVATION (AC)

COURSE CODE	23AR3229A	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand about the basics of Conservation in India	2	PO4, PSO2
CO2	Understand the Conservation Practices	2	PO3
CO3	Understand the importance & analysis of Urban Conservation	2	PO3
CO4	Discuss about Conservation planning & Adaptive Conservation.	2	PO4

#### Syllabus

Mod ule 1	Introduction to conservation: Understanding Heritage. Types of Heritage. Heritage conservation- Need, Debate and purpose. Defining Conservation, Preservation and Adaptive reuse. Distinction between Architectural and Urban Conservation. International agencies like ICCROM, UNESCO and their role in Conservation
Mod ule 2	Conservation in India: Monument conservation and the role of Archaeological Survey of India –role of INTACH – Central and state government policies and legislations- select case studies of sites such as Hampi, Golconda, Mahabalipuram etc Conservation practice: Brief study on Listing –Grading-Documentation - Assessing architectural character of historic structures. Guidelines for preservation, rehabilitation, and adaptive re-use of historic structures.
Mod ule 3	Urban conservation: Understanding the character and issues of historic cities in South India. Upgradation programmes in old areas and development strategies for regeneration of inner-city areas– select case studies of towns like Srirangapatna, Mysore and Bijapur. Historic districts and heritage precincts.
Mod ule 4	Conservation planning: Conservation as a planning tool. - Financial incentives and planning tools such as Transferable Development Right (TDR)-urban conservation and heritage tourism infrastructure facilities. Conservation management- community participation and financing conservation. Adaptive Conservation: Heritage tourism, Heritage Walk creation, Athen's charter, Adaptive reuse of Heritage buildings.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	The Conservation of European Cities	Donald Apple yard	M.I.T. Press,	1979
2	Historic Preservation: Curatorial Management of the Built World	James M. Fitch	University Press of Virginia;	1990
3	a Richer Heritage: Historic Preservation in the Twenty-First Century	Robert E. Stipe	Univ. of North Caroling press	2003



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### PE4: SET DESIGN (SD)

COURSE CODE	23AR3229B	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the Background writing and Concept creation for PLAY.	2	PO9, PSO1
CO2	Understand the Technology and concepts involved in Film set design.	2	PO3
CO3	Understand and making of Background set to resemble the feature, Variation nasality in Lay outing Set.	2	PO3, PSO1
CO4	Mock model on Concept allotted and study Lighting and prop Installations.	2	PO4

#### Syllabus

Module 1	DANCE/ DRAMA/ LECTURE/ THEATRE: Background study of the Event Scenario. Historical Evolution of the stage, degree of encirclement in various types of stage designs such as open air, arena, thrust in and proscenium stages, Script and story board, Terminology and Theory of Stage Design, Technical aspects like Sound, Lighting and Colour scheme, Visualization of and creation of sets e.g. with backdrops and scenery, set design with appropriate props, costume design and make up, Expenses.
Module 2	FILM SET DESIGN: Film set designs with response to camera positioning and movement, Indoor and outdoor shooting, Film sets as a creation of virtual environment appropriate for the scenery and shots, Support structure for film set erection for indoor and outdoor shooting, Architects role in cinematography: visualization, story board frames, Proportions, Computer generated stage set up: Mixing and editing, Exploring various materials of stage props, Budget
Module 3	SET LAYOUTING: Principles of layout for creating effective visual signage and explore the unique problems, technique, theory, and approaches of signage in film, theatre, and other forms of mediated exhibition. Introduction to design application for building signage.
Module 4	TABLETOP SET UP: Stop motion Animation and computerized animation, Concepts or story, Tabletop miniature box model, Lighting and special effects, Voice over, music and mixing, Overall editing and final presentation, Costing. EVENT STAGE: Concept and design, Ambience lighting and special effects, Stage props: Videowall presentation, sound and acoustics, Cost and estimation.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Stage Design: A Practical Guide	Gary Thorne		
2	Theatre Design: Behind the Scenes with the Top Set, Lighting, and Costume Designers	Babak A.		



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### PE5: HOUSING (HSG)

COURSE CODE	24AR4128A	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand housing and Housing issues	2	PO1, PO3
CO2	Understand Housing, 5-year plans specific to housing	2	PO1, PO5
CO3	Understand Critical Sources of Finance	2	PO3, PO4
CO4	Understand Planning – Physical, Administration, Socio-Cultural, Sustainable, Financial, Future forecasts, and trends	2	PO3, PO4, PSO1

#### Syllabus

Module 1	Concept of shelter, timeline, Dynamics of housing (users, need, demand & supply, terminologies); Migration, urbanization, scale, scope, types and ownership. Housing issues – Significance in National development; statistics of housing, problems, Future Demands – slums, shortage etc.
Module 2	Planning principles & Policies in Housing, 5-year plans specific to housing, Current scenario, Issues & Challenges. National & State policies; Development control regulations; Government & Private agencies, Schemes – Public Private Partnership, Slum rehabilitation Authority, Redevelopment etc. Study of International and Various countries policies in comparison to India.
Module 3	Economics of Housing – Concepts, issues, valuation, rent, development cost; Low-cost housing, mass housing, Affordable Housing, Sources of Finance – Banks, Finance agencies. Case studies and exploration and analysis of housing schemes for Rural & Urban areas.
Module 4	Study of user profiles, Planning – Physical, Administration, Socio-Cultural, Sustainable, Financial, Future forecasts, and Trends. Contemporary solutions for housing like Bunker houses, 3D printing, Tube houses, Container housing.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Urban Housing Strategies	Babur Mumtaz and Patweikly	Pitman Publishing, London	1976
2	Low Income Housing in the Development World	Geofrey K. Payne	John Wiley and Sons, Chichester	1984
3	Housing by people	John F.C. Turner	Marison Boyars, London,	1976



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### PE5: ARCHITECTURE PHOTOGRAPHY (AP)

COURSE CODE	23AR4128B	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO	CO Description	BTL	PO Mapping
CO1	Understand basics regarding usage, equipment and varied parameters of smartphone camera, professional camera	2	PO1,PO6, PO10, PSO1
CO2	Application of photographic equipment and techniques	3	PO1,PO10, PS01
CO3	Analyze with photojournalism and visual communication techniques	4	PO10, PS01
CO4	Apply the knowledge gained to visualize and write about buildings of architectural importance	3	PO10, PS01

#### Syllabus

Module 1	Introduction to architectural photography and role of the photographic image in the global world – basic instruction in Photojournalism.
Module 2	<b>Equipment:</b> cameras and lenses – techniques: film speed, exposure measurement, grey scale– photo-finishing and editing digital images.
Module 3	<b>Perspectives:</b> Single Point, Two- Point, Three- Point and methods of correcting distortions
Module 4	Lighting: External and Interior.

#### Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	“Professional Architectural Photography”,	M. Harris,	2001.	Focal Press,
2	“Basics Architectural photography”,	M. Heinrich,	2008.	Birkhauser Verlag AG,
3	“Architectural Photography: the professional way”,	Gerry Kopelow,	2007.	



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### PE6: INTERIOR DESIGN STUDIO (IDS)

COURSE CODE	23AR4118A	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Apply and demonstrate proficiency in conceptualizing and executing interior design projects, integrating principles of spatial planning, aesthetics, and functionality effectively.	3	PO1, PO3
CO2	Analyze advanced skills in utilizing digital tools and software to create comprehensive interior design presentations, fostering creativity and professionalism in their design solutions	4	PO1, PO5, PSO1

#### Syllabus

Module 1	Introduction to parameters of design, anthropometrics and ergonomics, human activity and use interior spaces and furniture. Analysis of design to perceive elements which define the character of the environment. Analyze the design process and concept formation.
Module 2	The student is expected to design two projects using Interior design principles and software's like Cad, Revit, Sketchup, Lumion etc. Concepts, detailed plans, measured drawings, 3D representation by Model making.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Space Planning Basics	Karen Mark,	Van Nostrand Reinhold	1992
2	Interior Design Illustrated	Francis.D. Ching & orky Bingelli	Wiley Publishers	





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### PE6: FURNITURE DESIGN STUDIO (FDS)

COURSE CODE	23AR4118B	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand and demonstrate proficiency in conceptualizing and executing furniture design projects, integrating principles of ergonomics, aesthetics, and functionality effectively.	3	PO1, PO3, PSO2
CO2	Analyze the skills in Planning of furniture with material usage understanding materials, manufacturing techniques for practical and innovative solutions. Minimum of 2 projects should be done by using prototypes, Detail drawings and utilizing traditional and digital methods, while exploring sustainable practices and cultural influences in furniture design	4	PO1, PO5, PSO2

#### Syllabus

Module 1	<p>Furniture Concept Presentation: Students will develop a concept for a furniture piece inspired by a specific design style or theme. They will create sketches, mood boards, and a written rationale to present their concept to the class.</p> <p>Prototype Construction: Students will select their preferred furniture concept from the previous assignment and create a physical prototype using appropriate materials and construction techniques. They will document their process with photographs and written reflections on challenges and successes.</p>
Module 2	Design Critique and Iteration: Students will participate in a peer critique session where they present their prototypes to classmates and receive feedback on design, functionality, and aesthetic appeal. They will then use this feedback to refine their designs and create a revised prototype.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Time Saver Standards for Interior Design			
2	Handbook of Specialty Elements in Architecture	Andrew Alpern	McGrawhill Co	1982





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### PE7: DISSERTATION (DIS)

COURSE CODE	23AR4269A	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand research skills by formulating a well-defined research question, conducting in-depth literature reviews, and presenting original findings in a structured academic format	2	PO6, PO7, PSO1
CO2	Analyzing the theoretical frameworks and empirical evidence to produce a coherent argument, contributing new insights to their field of study.	4	PO2, PO3

#### Syllabus

Module 1	Students may choose a topic related to Architecture and allied subjects. The topics must be vetted by the faculty. Emphasis must be on critical understanding, logical reasoning, and structured writing. Students may be encouraged to select the topic which may eventually culminate in the Architectural Design Thesis of the subsequent semester.
Module 2	Students can thus utilize this as an opportunity for pre-Thesis study, amounting to literature review and relevant case studies which are otherwise required for Thesis. By the end of the semester, students are expected to submit a written paper of approximately 3500 words. Standard referencing conventions and technical writing norms must be adhered to. Students are expected to present the progress of the study at various stages of the semester. Final assessment of the students' work may be based on written Paper as well as oral communication. However, greater weightage may be given for writing skills and research content of the study

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Thesis and assignment writing	Anderson, J. and Poole, M	John Wiley	1998
2	The dissertation: an architecture student's handbook	Borden, I. and Ray, K. R.	Oxford Architectural	2006
3	Conducting research literature reviews: from paper to the Internet	Fink, A.	Sage.	1998
4	Writing for academic journals	Murray, R	Berkshire	2005



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### PE7: THESIS SEMINAR (TS)

COURSE CODE	23AR4269B	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Identify, explore and research topics of their interest; then describe by the organized presentations.	2	PO1, PO6, PSO2
CO2	Apply the ideas in finding a new solution to the existing problem and interpret via applying the architectural systems	3	PO6, PO10, PSO1

#### Syllabus

Module 1	Students will explore and research topics of their interest; then organize presentations. To help students improve as speakers, each student will receive feedback from their CC, Guides, other faculty members and fellow students. All enrolled students must be present at each seminar. It is expected that students will actively participate by asking questions of the speaker.
Module 2	The seminar process includes topic selection, synopsis submission, research on the topic and finally a presentation. Students should strive for professionalism in all aspects of this class. Students can take aid of various mediums of visual presentation ranging from Power points to films to working models to best explain their topic. Each student will give two 20-minute presentations. The student's seminar should cover a minimum of four related papers in the topic chosen. First one will be a practice seminar in front of the class to get immediate feedback and constructive criticism. The entire department will be invited for the second one. Students to submit a detailed report describing their presentation.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Architectural Research Methods	Linda Groat and David Wang	Wiley	2013
2	101 Things I Learned in Architecture School	Matthew Frederick	The MIT Press	2007
3	The Architecture Reference & Specification Book	Julia Mc Morrough	Rockport Publishers	2018



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### PE8: URBAN DESIGN (UD)

COURSE CODE	23AR4233A	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand Urban Design terminologies	2	PO2, PO10, PSO1, PSO2
CO2	Understand Users and Activities in a city	2	PO2, PO4, PO9, PSO2
CO3	Understand public spaces, streets & Transport	2	PO2, PO9, PO10, PSO2
CO4	Understand Application of Urban Design	2	PO2, PO4, PO9, PSO2

#### Syllabus

Module 1	Introduction to Urban Design; Terminologies; Urban Design as a Multi-Disciplinary field; Stakeholders and their role in the process of Urban Design. Users and Activities in a city and their Analysis; User needs and behavioral studies; Socio-cultural and Socio-economic aspects of people; Memory and mental mapping
Module 2	Users and Activities in a city and their Analysis; User needs and behavioral studies; Socio-cultural and Socio-economic aspects of people; Memory and mental mapping
Module 3	Urban Design – Scope, Scale, Strategies, levels & legislation; “FIVE ELEMENTS” in a city; People- Centric Design and Public Participation. Urban morphology & Urban Character; Elements and aspects of Urban Design; Built & unbuilt spaces; Buildings; Public spaces, streets & Transport; Pedestrianization& streetscape; Movement pattern; Services; Defensible Spaces; Environment and Urban Design.
Module 4	Survey techniques; Evolution Analysis; Townscape analysis; Perpetual structure; Permeability study (Privacy & Accessibility) & Visual Analysis; Constraints and possibilities; designing in a context and site planning; articulation of spaces; Flexibility, adaptability; Formulation of issues for intervention. Application of Urban Design, Examples of Good Urban Design; New Urbanism, case studies and contemporary urban interventions.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Good City form	Kevin Lynch	MIT press	1995
2	The Image of the City	Kevin Lynch	MIT press	1960
3	Where We Want to Live: Reclaiming Infrastructure for a New Generation of Cities	Ryan Gravel	St. Martin.s press	2016
4	The city of Tomorrow: Sensors, networks, Hackers, and the future of Urban Life	Carlo ratti and Matthew Claudel	Yale University	2016



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### PE8: BEHAVIORAL ARCHITECTURE (BA)

COURSE CODE	23AR4233B	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand concepts and concerns of perception. Identify and develop the sensitivity to the needs of users and clients	2	PO1, PO4, PO10, PSO2
CO2	Understanding the designing and planning for urban quality	2	PO4, PO10, PSO2
CO3	Understand and apply the macro and micro built environment and behavioural aspects	2	PO3, PO9, PO10, PSO2
CO4	Apply the relationship between built - environment and perception	3	PO3, PO9, PSO2

#### Syllabus

Module 1	Concepts And Concerns of Perception: Definition - Visual perception - perceptual constancy, objective and spatial vision, attention and awareness, methods of vision perception and science. Developing Sensitivity to The Needs of Users and Clients Architectural assumptions and Environmental Designs, Designs and social practices, involvement of clients and user in Designs and built environment, realities of clients and public their impact projects and designs.
Module 2	DESIGNING AND PLANNING FOR URBAN QUALITY: Quality of urban environment and living - past, present, and future trends, role of urban design in urban environment, planning for quality living in urban areas.
Module 3	Macro And Micro Built Environment and Behavioural aspects: Relationship of built environment to society, spatial relationship within built - environment, influence of physical environment on human behaviour, influences of built environment on human behaviour
Module 4	Built - Environment and Perception: Case studies of tall buildings, low raise neighbourhoods, interior and exterior elegance of built environment, local and regional level landscape.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Visual perception	Yantis. S	Psychology Press	2001
2	Urban Design as public policy	Johathan Batnett	Haxper and row Publications	1983
3	Planning for urban quality	Parfeet M and Power G	Rent Ledge	1977



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### PE9: TRANSPORTATION PLANNING (TSP)

COURSE CODE	24AR4234A	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes:

CO#	CO Description	BTL	PO Mapping
CO1	Understand Basic elements and various category of vehicles depending upon the category of Roads exiting	2	PO1
CO2	Understanding Various types of Circulation & Users along with their infrastructural needs.	2	PO3, PO7
CO3	Understanding Road Safety & Civic Sense	2	PO3, PO7
CO4	Understanding Traffic & Transportation byelaws & Regulation	2	PSO2, PO9

#### Syllabus

Module 1	Role of Roads & Its network, Type of Users & their Behaviour, Type of vehicles, their characteristics, and their convenience. Type of roads, classification, Design elements of according to type of carriage way & vehicles of roads.
Module 2	Categories and typologies in signages used on road networks in city, highways, etc. Development or change in signages & their utility. Road markings, typologies, colour categorization, standards for signages. Types of intersections like T, Y, Three-legged, etc., Spatial standards for traffic islands, components in various road intersections. Traffic calming elements like speed breakers, tabletop crossings, etc., <b>Traffic signals, Traffic control, street lighting &amp; Road accidents statistics:</b> Traffic signals Advantages & disadvantages, Signal indications, signal illustrations, Co-ordinated control signals, emergency traffic control, location of signals location & design of traffic signals. Nature & type of road accidents. India road accident statistics. Streetlighting, Emergency responsive system, identification of accident-prone areas. Traffic management measures for accident prevention.
Module 3	Need for road safety, category of road users and their safety suggestions, precautions for driving in difficult conditions like night, rain, fog, skidding conditions, etc., Importance of civic sense, road etiquettes and road user behaviour, rules of road, right of way, sensitization of road rage, assistance to road accident victims.
Module 4	Indian Motor Vehicles Act (Chapter – VII, in detail), Regulation concerning traffic to cycles, scooters, pedestrian traffic, over taking rules, left drive, etc., various kinds of penalties. National Road Safety policy, state motor vehicular rules. Pedestrian circulation infrastructure, standards for walkways & materials. Pedestrian bridges, subways, cycle tracks, Barrier free design elements, all age and types of users' friendly features design. Comforts and needed infrastructure for especially abled users, safety provisions needed like hand railing, anti-skid flooring, etc.





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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Introduction to Traffic Engineering	R. Srivasa rao.	Hutchinson, London,	1968
2	Traffic engineering & Transport planning	LR Kadiyali	George Allen and Unwin, Sydney	2005
3	Road Signages and signs	Ministry of Road Transport and Highways	Government of India, New Delhi	1999
4	Pocket book for Highway Engineers	MORT & H	Government of India, New Delhi	2019
5	Street Design Guidelines, Guidelines for Road Markings, Guidelines and Specification for Crash Barriers, pedestrian Railing and Dividers	UTTIPEC	Government of India, New Delhi	2007





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### PE9: DISASTER MITIGATION AND MANAGEMENT (DMM)

COURSE CODE	23AR4234B	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the necessity for disaster management and measures that are to be followed.	2	PO1, PO3, PSO1
CO2	Understand the disaster preparedness and Involving Design Considerations for buildings	2	PO3, PSO1
CO3	Understand the study of design considerations for disaster management and precautions.	2	PO3, PSO1
CO4	Understand the Relief & Rehabilitation for Disasters	2	PO3, PO9, PSO1

#### Syllabus

Module 1	Introduction: Disaster Management & its necessity; Types, characteristics, causes & impacts; Natural disasters, Manmade disasters, Epidemics; Institutional & Legal arrangement; NDMA; Financial arrangement; Role of Architect at all stages of Disaster Management. Disaster Prevention & Mitigation: Risk Assessment & Vulnerability Mapping; Long-term measures; Review & revision of building byelaws & codes; Hospital Preparedness; Retrofitting; Mitigation strategies, Trigger Mechanism; Capacity building; Awareness programs. Architectural Design considerations.
Module 2	Disaster Preparedness: Forecasting & Early Warning Systems: Plans of action for probable disasters; emergency, medical, casualty management systems; Resources needed; Training, Simulation & Mock Drills; Partnerships for Mitigation & Preparedness; Audit of buildings & infrastructure; Architectural.
Module 3	Design considerations. Response: Role of various agencies; Standard Operating Procedures (SOPs); Levels of Disasters; Incident Comm& System (ICS); First & Other Key Responders; Medical Response; Information & Media Partnership; Search & rescue; Architectural Design considerations.
Module 4	Relief & Rehabilitation: Temporary Relief Camps; Management of Relief Supplies; Provision of Intermediate Shelters; Relocation & reconstruction, repair & retrofitting of buildings & infrastructure; Socio-cultural-economic considerations; Capacity building for self-help construction; training & awareness programs. Architectural Design considerations.

#### Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	Disaster Hits Home, New policy for Urban Housing Recovery,	Mary Comerio	2001	Oxford University Press, London
2	Proceedings – Learning from practice- Joint US and Italy Workshop- October 18- 23		1992	National Science Foundation; US
3	Earthquake Resistant Design and Construction of buildings Practice-	Bureau of Indian	1993	BIS



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# SYLLABUS OF COURSES UNDER BUILDING SCIENCE AND APPLIED ENGINEERING (BSAE)

## DESIGN OF STRUCTURES - I



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## (PLANE TRUSSES, SHEAR FORCE AND BENDING MOMENT) (DOS-I)

COURSE CODE	23AR1204	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand about the architecture and structural engineering interface. Understanding the concept of forces and structural systems.	2	PO1
CO2	Understanding the concept of forces and structural systems. Analyzing the plane trusses	2	PO3, PSO1
CO3	Understanding of shear force and bending moments in column. Determination of deflection of beams	3	PO3, PSO2
CO4	Understanding of centre of gravity and moments of inertia and its impact on the structures.	3	PO3

### Syllabus

Module 1	<b>Introduction to Forces and Structural Systems:</b> Process of building structures. Broad categorization of structural systems. Basic requirements of structure. Force and its units, Laws of forces, Resultant of a Force System, Law of Inertia, Law of action and reaction, Free body diagram, Static equilibrium & conditions of equilibrium, conditions of statical determinacy, Degree of Indeterminacy. Types of supports and support reactions, Determination of support reactions for statically determinate structures, Analysis of forces, moments, and couples in structures.
Module 2	Analysis of a perfect truss by method of joints and method of sections. Simple stress and strains, elastic constants, stress strain curves, relationship among elastic constants. Study of beams with different types of support conditions and different types of loadings. BIS 875 code for estimation of design loads in a building.
Module 3	Shear force and shear force diagrams, bending moment & Bending moment diagrams for determinate beams, Sagging and Hogging Bending Moments, Sign Convention, Point of contraflexure and determination of its location. Flexural and shear stresses under bending, Determination of deflection in the beams (only formulae to be told, no derivation) Deflected shapes of the beams.
Module 4	Centre of Gravity and Centroid and its determination for a plane lamina. Moment of Inertia and its determination for a plane lamina, Parallel Axis theorem and Perpendicular Axis theorem.

### Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	A textbook on Engineering Mechanics	Bansal R. K	2005	Laxmi Publications, Delhi
2	A textbook on Strength of Materials	Bansal R. K	2007	Lakshmi Publications



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### DESIGN OF STRUCTURES - II (DESIGN OF BEAMS AND COLUMNS) (DOS-II)

COURSE CODE	23AR2107	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the concept of simple stresses and strains and elastic properties of solids	2	PO1
CO2	Analyze the properties of structural timber and bamboo	4	PO3, PSO1
CO3	Analyze the Design of flexure members of timber and design of simple truss.	4	PO3, PSO3
CO4	Understand Structural properties of brick masonry and analysis	2	PO3

#### Syllabus

Module 1	Simple Stresses and Strains: Introduction to structural elements. Types of engineering materials, their mechanical properties, and the tests for determination of the same. Study of a section subjected to pure bending, Neutral Axis, Moment of Resistance and Section Modulus. Stress and Strains; stress strain diagram for mild steel and high tensile steel and concrete Elastic constants and their mutual relationships; Simple redundant problems of stresses and strains.
Module 2	Properties of Structural Timber, Defects of timber and their impact on structural properties of timber, permissible stresses in timbers and modification factors. Classification of timber, Introduction to IS Code of Timber Construction – IS: 883. Introduction to Bamboo as structural material
Module 3	Analysis and Design of flexural members of timber. Built up beams and fletched beams. Analysis and Design of timber columns; Solid columns and built-up columns. Design of members of a simple truss.
Module 4	Brick as a structural material, Design of a load bearing brick wall and wall footing. Types of masonry used as structural system for building structures. Structural properties of brick masonry and analysis and design of low-rise masonry buildings including masonry foundation

#### Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	A textbook on Engineering Mechanics	Bansal R. K	2005	Laxmi Publications, Delhi
2	A textbook on Strength of Materials	Bansal R. K	2007	Lakshmi Publications
3	Strength of Materials and Theory of Structures	Punmia P.C	1994	Vol. I, Lakmi Publications, Delhi
4	Strength of Materials	Ramamrutham S.	1990	Dhanpatrai & Sons, Delhi.
5	Strength of Materials	Nash W.A	1989	McGraw Hill Book



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### CLIMATE RESPONSIVE ARCHITECTURE (CRA)

COURSE CODE	22AR2109	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of elements of climate, human comfort, and human body heat balance	2	PO1, PO4, PSO2
CO2	Understanding the concept of heat transfer in buildings, sun path diagrams and designing shading devices	2	PO3, PO5, PSO2
CO3	Understanding air movement for designing buildings accordingly.	2	PO4, PO5, PSO2
CO4	Understanding climate responsive architecture through case studies.	2	PO4, PO5, PSO2

#### Syllabus

Module 1	Climate and Human Comfort Factors that determine climate of a place – Components of Climate – Climate characteristics - Climate classifications - NBC climatic classification for India – classification for building designers in tropics. Human body heat balance – Human body heat loss – Effects of climatic factors on human body heat loss – Effective temperature – Human thermal comfort – Use of C. Mahony's tables.
Module 2	Heat Flow through Building Envelope Concepts The transfer of heat through solids – Definitions – Conductivity, Resistivity, Specific heat, Conductance, Resistance and Thermal capacity – Surface resistance and air cavities – Air to air transmittance (U value) – Time lag and decrement – Types of envelopes with focus on glass. Design of Solar Shading Devices Movement of sun – Locating the position of sun – Sun path diagram – Overhead period– Solar shading– Shadow angles – Design of appropriate shading devices
Module 3	Air Movement due to Natural and Built Forms The wind – The effects of topography on wind patterns – Air currents around the building – Air movement through the buildings – The use of fans – Thermally induced air currents – Stack effect, Venturi effect – Use of courtyard.
Module 4	Climate and Design of Buildings Design strategies in warm humid climates, hot humid climates, hot and dry climates, and cold climates – Climate responsive design exercises

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	An Introduction to Building Physics	Narashimhan	Professional Pub Service	2001
2	Housing Climate & Comfort	M.Evans	Architectural Press, London	1980
3	Manual of Tropical Housing and Building- Climatic Design	O.H. Koenigsberger and Others	Orient Longman, India,	2010





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### BUILDING MATERIAL AND CONSTRUCTION-I(MASONRY) (BMC-I)

COURSE CODE	24AR1258	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the material stones, bricks and Soil: Types, Properties, Challenges. Bricks: Compositions, Classifications, Alternative Bricks Stone: Stone classifications, tests, uses, preservations, Artificial stones. Concrete: Masonry	2	PO8
CO2	Apply the knowledge about the techniques of masonry and draft the types of Stone masonry, brick masonry, and Concrete block masonry. Different masonry Walls, Foundations, Lintels and Arches. To understand the basic building components of the building i.e.: Foundation to parapet wall. To study the elements of the building and their importance, to understand the sequences of construction & structural system.	3	PO6, PO9, PO10, PSO2

#### Syllabus

Module 1	<p>Stones: Geological Classification of rocks – test for stones, uses of stones, deterioration of stone, preservation of stones, stones available for construction in India their properties and uses. Stones for finishes – cutting &amp; polishing – granite and marble. Artificial stone and their uses &amp; types of stone masonry.</p> <p>Bricks &amp; Clay Products:</p> <p>Bricks: Composition of good brick, properties and uses of bricks, classification of bricks, shape of bricks, fire bricks, and substitutes for bricks Clay products: Tiles, terra cotta, stoneware, earthenware, porcelain, and clay block their properties and uses, types of masonry systems.</p> <p>Concrete: Hollow and solid blocks, manufacturing, uses and properties, CMU wall construction and detailing.</p>
Module 2	<p>Basic Building Components, Foundation, Walls, Lintels and Arches</p> <p>Basic building components: Cross section of a small building to understand foundation, plinth beam flooring, sill, lintel, roof beam and slabs, Parapet &amp; weathering course; Foundation: typical types of foundations in stone, brick &amp; RCC. Walls: Details of walls section across the opening (door &amp; window) Roofs: simple configurations and details of various forms of roofs (flat, slope pyramidal &amp; dome). Basic building components: Cross section of a small building to understand foundation, plinth beam flooring, sill, lintel, roof beam and slabs, Parapet &amp; weathering course; Foundation: typical types of foundations in stone, brick &amp; RCC. Walls: Details of walls section across the opening (door &amp; window) Roofs: simple configurations and details of various forms of roofs (flat, slope pyramidal &amp; dome).</p> <p>Brick, Stone Masonry &amp; different types of masonry systems:</p> <p>Applications of brick masonry: Foundation, walling, types of brick walls, brick masonry (English, Flemish, rat trap bond) detailed brick layout at corners, junctions and brick piers, style of construction viz., exposed brick work, Reinforced brick walls, piers etc</p>





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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	“Construction principles, Materials and Methods”,	Harold B.Olin	John Wiley & Sons	1994
2	“Building construction”	B.C.Punmia	Laxmi publications (p)Ltd	1984
3	“Construction Technology”	R. Chudley	Prentice hall	2005



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### DESIGN OF STRUCTURES – III (DESIGN OF COLUMNS AND FOOTINGS) (DOS-III)

COURSE CODE	23AR2211	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of Basics of RCC design	3	PO1, PO3, PSO2
CO2	Understanding and designing of columns	3	PO1, PO3, PSO2
CO3	Understanding and designing of footings and staircases	3	PO1, PO3, PSO1
CO4	Understanding and analysis a given section for under or over design carrying capacity	3	PO1, PO3, PSO1

#### Syllabus

Module 1	History of reinforced concrete structures and philosophy of limit state design Understanding the codal provision. Analysis and design of reinforced concrete beams, slabs.
Module 2	Introduction to columns: short columns, slender columns, uni-axial behaviour, and bi-axial behaviour. Designing the same.
Module 3	Introduction to types of footings and analyzing and designing the isolated footing with axial load and moment. Introduction to the types of staircases and analyzing and designing the dog legged staircase.
Module 4	Under Reinforced, Balanced and Over-Reinforced sections: Formulation, Analysis of a given section and determination of moment of resistance/load carrying capacity. Design under shear, bond and development length, Analysis & Design of a doubly reinforced RC beam, Continuous and Cantilever Beams.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Limit State Design in Structural Steel	M.R. Shiyekar,	PHI Learning Private Limited	2010
2	Design of Steel Structures	N. Subramanian,	Oxford Higher Education	2008
3	Limit State Design of Steel Structures	S.K. Duggal,	McGraw Hill Education, Private Limited.	2010
4	Structures Publications	Dr. V. L. Shah, Prof. Veena Gore,		2012
5	Design of Steel Structures” by Limit State Method as per IS800-2007	S.S. Bhavikatti	I.K. International Publishing House Pvt, Ltd.	2012



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### BUILDING SERVICES – I (PLUMBING AND SANITATION) (BS-I)

COURSE CODE	22AR2212	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the processes involved in the distribution, treatment, and disposal of wastewater.	2	PO7
CO2	Understanding the building sanitation method and different types of plumbing systems.	2	PO8
CO3	Understanding the plumbing and sanitary layouts of a residence.	2	PO8
CO4	Understanding the use and installation of various plumbing fixtures and sewerage systems for sanitary conveyance.	2	PO8, PSO2

#### Syllabus

Module 1	<p>Water quality, Treatments and Distribution: Sources of water supply – Water Quality – Water requirements for all type of residential, commercial, Industrial buildings and for town – Water treatment methods – Screening, aeration, Sedimentation, Filtration, Disinfection, Softening, conveyance of water – Distribution of water – Choice of pipe materials- Types of fixtures and fittings – System of plumbing in all type of buildings. Sources of water supply – Water Quality –</p> <p>Water requirements for all type of residential, commercial, Industrial buildings and for town – Water treatment methods – Screening, aeration, Sedimentation, Filtration, Disinfection, Softening, conveyance of water – Distribution of water – Choice of pipe materials-</p>
Module 2	<p>Types of fixtures and fittings – System of plumbing in all types of buildings. Wastewater, Treatments and Disposal Wastewater: Sewage disposal, primary treatment. Secondary treatment, biological treatment, and Modern types of Sewage Treatment Plants - Sewer line fixtures and traps,</p> <p>Manholes, Septic tank. Basic principles of storm water drainage – drainpipes and type of pipe – storm water gutter – rainwater harvesting principles – storage sumps. Building Sanitation: Principles of sanitation, collection, and disposal of various kinds of refuse from buildings.</p>
Module 3	<p>Methods of carrying refuse, systems of refuse disposal, their principles. Plumbing definitions and related terms, plumbing systems (one pipe, two pipe etc.), House drainage system, Drainage of subsoil water. Inspection chambers, Manholes, Sub-drains, culverts, ditches, and gutters, drop inlets and catch basins, roads and pavements, storm overflow/regulators.</p> <p>Plumbing and Sanitary Appliances: Basic principles of Plumbing, need, scope, terminology. Specifications and installation of sanitary fittings like wash basins, water closets, urinals, bidets, sinks, etc. in buildings. Uses of gate valve, float valve, flap valve, ball valve, flush valve, etc., different types of taps, faucets, stop cocks, bib cocks, 'P', 'Q', 'S', floor/bottle</p>



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	traps used in buildings.
Module 4	<p>Design considerations on drainage scheme. Planning of bathrooms, lavatory blocks and kitchen in domestic and multi- storied buildings. Preparation of plumbing drawings, symbols commonly used in these drawings. Sewerage: Indian standards and byelaws for sanitary conveyance. Disposal of sewage from isolated buildings, Gradients used in laying of drains and sewers for various sizes. Septic tank details &amp; capacity calculation. Sewage treatment.</p> <p>Use of pumps in sanitation, biogas, soil disposal without water carriage, rural sanitation. Layout design and details of water supply distribution system in a Campus or Small residential Neighbourhood - Layout design and details of sewage and drainage system for different types of buildings - water supply pipelines, storm water drainage pipelines and Rainwater Harvesting for small residential Neighbourhood.</p>

### Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	Water supply and sanitary engineering	S.C.Rangwala	Anand, 1989.	Charotar Publishing House
2	Wastewater Engineering	Punmia B.C.,	2009	Laxmi Publications,
3	Wastewater Treatment for Pollution Control	Arceivala S.J.,	2008	Tata McGraw Hil
4	Water Supply Engineering	Punmia, B. C., Jain, A. K. and Jain, A. K.	1995	New Delhi: Laxmi Publications
5	National Building Code	bureau of indian standards (BIS)	2016	Bureau of Indian standards (BIS)



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### BUILDING MATERIAL AND CONSTRUCTION-II (DOORS, WINDOWS, PARTITION, FALSE CELING) (BMC II)

COURSE CODE	24AR2160	MODE	R	LTPS	0-0-4-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the materials and its joinery: Timber, Bamboo. Understand the techniques, types of construction of wooden doors, windows, roofing. Understanding Cement and Concrete: Types, properties, tests, and applications in Doors, Windows, Roofing. Understanding Ferrous and Non-ferrous materials (Steel): Types, properties, Applications in Doors, Windows, Roofing.	2	PO10
CO2	Apply the knowledge and draft the details of wooden & steel trusses, RCC roofs, brick roofs, door and windows, wooden, RCC and Steel Roofs trusses as per construction industry/practice. Formwork, Shoring and Scaffolding: types and application	3	PO6, PO8, PO9, PSO2

#### Syllabus:

Module 1	<p>Timber-Joinery: Methods of construction using natural timber in joinery works including methods of fixing and options for finishing of doors &amp; windows-terms associated &amp; positioning. Windows (panelled, louvered, glazed and sliding windows) - Doors (panelled, glazed, sliding, sliding/folding, louvered and pivoted) – Ventilators (top hung, bottom hung, pivoted, louvered, and glazed.</p> <p>Bamboo and Other Materials: Design and Construction Techniques using bamboo for building components for small scale buildings like snack bar, tree house including detailing of doors and windows, arches, barrel walls, weave structures and understanding of the same through case studies Cane, gate, coir, coconut - Growth, Form, Shape, Roofing materials – Thatch, grass, Bamboo, reeds – Basics – Case studies and applications.</p> <p>Doors, Windows, Wooden trusses</p>
Module 2	<p>Roofs, Trusses: Methods of construction using material in various structural components of the building such as floors, walls, and roof - Exercises involving the above through case studies. Roofing: Types of brick roofs, Madras terrace roof, jack arch roof, brick arches and domes, reinforced brick roofs, vaults and domes, and construction of arches, vaults, and domes, RCC flat roofs, Steel trusses.</p> <p>Formwork, Shoring and Scaffolding - types and application</p>



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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	American Institute of Timber Construction (AITC), "Timber Construction Manual"		Wiley Publishers	2004
2	"Building Construction"	Francis D.K Ching	John Willey & Sons	2008
3	"Construction of Buildings" Volume 1&2	Barry	Blackwell Publishing Ltd, Oxford	2005
4	"Modern Carpentry"	Howard Bud	Good Heart – Wilcox publishers, Portland	2003





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### DESIGN OF STRUCTURES-IV

#### (DETAILING OF STRUCTURAL MEMBER) (DOS IV)

COURSE CODE	23AR3115	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of limit state design.	2	PO2
CO2	Apply the techniques and Design of reinforcement for a section.	3	PO2, PSO2
CO3	Apply the Design detailing, and the purpose of one-way and two-way slabs.	3	PO3, PSO2
CO4	Apply the detailing for special structures such as deep beams, corbels, and shear. walls etc.	3	PO3, PSO2

#### Syllabus

Module 1	Introduction, general requirements for structural detailing in concrete, simple theory, steel for reinforcement, general rules for detailing. Concept of Limit state Design, Characteristic strength of steel and concrete, Loads and Loading conditions, Limit state of Collapse and Serviceability.
Module 2	Analysis and Design of reinforcement for a section subjected to torsion, Side face reinforcement. Design and Detailing of a lintel beam & lintel with sunshade. Analysis & Design of Flanged Beams
Module 3	Analysis of slabs spanning in one direction and spanning in two directions. Design & Detailing of a one-way slab, Design & Detailing of a cantilever chajja. Design & detailing of a two-way slab.
Module 4	Detailing for special structures such as deep beams, corbels, walls, shear walls, underground and overhead water tanks, chimneys, bunkers and silos, piles, and pile caps

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Reinforced Concrete Structures Vol-1 & Vol-2	B.C. Punmia	Laxmi Publications, Delhi	2004
2	IS 456-Indian Standard, Plain and Reinforced Concrete	BIS	Bureau of Indian standard	2000
3	Theory of Structures	Punmia, B. C., Jain, A. K. and Jain, A. K.	Laxami Prakashan	1992



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### BUILDING SERVICES II

#### (ELECTRICAL AND ACOUSTICS) (BS III)

COURSE CODE	23AR3116	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the planning techniques and study of electricity, installations, wiring, and principles of distribution and safety.	2	PO1
CO2	Understanding the application of artificial illumination and lighting design for various spaces	2	PO3
CO3	Understanding the knowledge of ventilation principles.	2	PO9, PSO2
CO4	Applying the properties of sound and architectural acoustics, applicability of acoustic concepts and design, and learning how to create acoustics and analyze the integration of all three services in architectural planning.	3	PO9, PSO2

#### Syllabus

Module 1	Electrical Services: Electrical systems – Basic of electricity– single/Three phase supply – protective devices in electrical installation – Earthing for safety – Types of earthing – ISI Specifications. Electrical installations in buildings – Types of wires, wiring systems and their choice – planning electrical wiring for building – Main and distribution boards –Principles of illumination.
Module 2	Illumination and Lighting Design: Visual tasks – Factors affecting visual tasks – Modern theory of light and colour – synthesis of light – Additive and subtractive synthesis of colour – Luminous flux – Candle – solid angle illumination – utilization factor – Depreciation factor –MSCP – MHCP –Laws of illumination. Classification of lighting –Artificial light sources – Spectral energy distribution – Luminous efficiency – Colour temperature – Colour rendering. Design of modern lighting – Lighting for stores, offices, schools, hospitals, and house lighting. Elementary idea of special features required, and minimum level of illumination required for physically handicapped and elderly in building types. Electrical Layout of Simple Buildings: Electrical layout of a simple residential, school, and commercial building.
Module 3	Ventilation: The wind, The effects of topography on wind patterns, Air currents around the building, Air movement through the buildings, air changes, quality of air, use of fans, thermally induced air currents, pressure losses: Buoyancy-driven (Stack effect, Venturi effect) – Use of courtyard. Lab: Types of anemometers and its use. Wind tunnel experiment for wind movement around the buildings, Simple experiments to measure outdoor and indoor wind velocity.
Module 4	Fundamentals of architectural acoustics Fundamentals: Sound waves, frequency, amplitude, decibels, logarithms, measurement versus perception, addition, and subtraction of decibels. NC curves. Material property: Absorption, reflection, scattering, diffusion, transmission, absorption coefficient, NRC, sound transmission class (STC), impact insulation class (IIC). Acoustics of Architectural Spaces: Reverberation time, sound in enclosed space, basic room acoustics concepts and design, design of the auditorium, conference hall, recording studio and classrooms. Environmental noise and its control.



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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Auditorium acoustics and architectural design.	M. Barron	Taylor & Francis.	2009
2	The Architecture of Light: Architectural Lighting Design Concepts and Techniques.	R. Concept nine	Sage Publications.	2008
3	Acoustic Absorbers and Diffusers	T. J. Cox and D'Antonio	Taylor & Francis.	2009
4	Architectural Lighting	D. M. Eagan	McGraw Hill.	2002
5	Daylighting for Sustainable Design.	M. Guzowski	McGraw Hill.	1999



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### BUILDING MATERIAL AND CONSTRUCTION-III (STAIRCASE, FLOORING AND ADVANCED ROOFING)

#### (BMC III)

COURSE CODE	24AR2263	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the Floor Finishes, Roofing techniques like Vaults, domes and Different slab techniques like one way slab, two-way slab, waffle, Bubble deck slab etc. Staircase components and types. Damp proof material and plastering	2	PO10
CO2	Flooring; Concrete, Wooden, Stone, Tile etc Slabs/Roofing: Vault, Dome, Waffle, Bubble deck, hollow core slabs, filler slab etc. Staircase types using the materials Wooden, metal, RCC etc	3	PO6, PO8, PO9, PSO2

#### Syllabus

Module 1	Flooring, Roofing, Staircase in Buildings: Understand the Floor Finishes, Roofing techniques like Vaults, domes and Different slab techniques like one way slab, two-way slab, waffle, Bubble deck slab, filler slabs etc. Staircase components and types. Damp proof material and plastering  Types, Components, applications, material specifications, Preservation.
Module 2	Flooring –Concrete, Wooden, Stone, Tile etc Slabs/Roofing – Vault, Dome, Waffle, Bubble deck, hollow core slabs. Staircase types using the materials Wooden, metal, RCC etc.  Construction details as per industry standards.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Modern Carpentry”, Good Heart	Wills H Wagner, Howard Bud	Wilcox Publishers, Portland	2003
2	“Construction of Buildings” Volume I&II	Barry	Blackwell Publishing Ltd, Oxford	2005
3	“Timber Construction Manual”	American Institute of Timber Construction (AITC)	Wiley Publishers	2004
4	“Building Construction” Illustrated	D.K.Ching	John Wiley & Sons	2008



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### BUILDING SERVICES III (HVAC AND FIRE SAFETY) (BS III)

COURSE CODE	23AR3221	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the Thermal Properties of the building material and components and mechanical ventilation	2	PO1, PSO1
CO2	Understanding the principles, systems, and design criteria of HVAC.	2	PO1, PSO1
CO3	Understanding the techniques and concepts in fire safety norms in the buildings.	2	PO1, PSO1
CO4	Apply the techniques of mechanical transportation systems in building plans	3	PO1, PSO1

#### Syllabus

Module 1	Thermal Properties of the building material and Components and mechanical ventilation: Behaviour of heat propagation, thermal insulating materials and their coefficient of thermal conductivity. General methods of thermal insulation: Thermal insulation of roofs, and exposed walls. Ventilation: Definition and necessity, the system of ventilation. Principles of air conditioning Air cooling, Different systems of ducting and distribution, Essentials of the air-conditioning system.
Module 2	HVAC: Principles, Systems and Design Criteria: Thermodynamics. Transfer of heat. Refrigeration cycle components. Vapour compression cycle. Refrigerant, Compressor, condenser, evaporator, refrigerant control devices, electric motors, air handling units, cooling towers. Air conditioning systems for buildings of different scales and their requirements- window type, split system, package unit, direct expansion system, chilled water system, fan coil unit, and district cooling systems. Energy efficient systems, environmental aspects, and latest innovations. Design criteria for selection of air conditioning. Configuring/ sizing of mechanical equipment, equipment, and spaces for them. Horizontal and vertical distribution of services for large buildings. Exercise the above through choice, calculations, layout, and drawings.
Module 3	Fire and Safety: Causes of fire in buildings. Stages of fire and how it spreads. Fire drill. Heat/ fire/ smoke detection. Alarm and extinguisher systems. Fire safety standards. General guidelines for egress design for multi-storey buildings. Understanding all the above through product literature/ field visits. Exercise on design of fire safety systems for different building types through choice, calculations, layout, and drawings
Module 4	Mechanical Transportation Systems in Buildings: Lifts and escalators - types and applications. Round trip time for lifts. Design of lift lobby and vertical transportation core. Conveyors, travelators, dumb waiters. Standards for all. Latest technologies in vertical transport systems. Integration of lifts and escalators with building automation systems. Understanding all the above through product literature/ field visits. Design exercise on the above through choice, calculations, layout, and drawings





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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Building Services Handbook	Fred Hall and Roger Greeno	Routledge	2017
2	National Building Code of India 2016- Volume I	Bureau of Indian Standards	BIS	2016
3	The Vertical Transportation Handbook	Robert S. Caporale	Wiley, and Sons	2010
4	Environmental Issues for Architecture	David Lee Smith,	Wiley	2011
5	Building Services Engineering	David V. Chadderton	Spon Press	Spon Press





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### BUILDING MATERIAL AND CONSTRUCTION-IV (PARTITIONS, FALSE CEILING AND FALSE FLOORING) (BMC IV)

COURSE CODE	24AR3166	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding Plastics, Glass, Aluminium, Gypsum Board, Fibre Board, particle Board as a building material: types, properties, use, principles and methods of construction. Markey Survey of the material types.	2	PO10
CO2	Apply the knowledge: Glass and Metal cladding of facades and building envelopes, Skylights: Fixing and fabrication details. Walls: Sandwich panel walls, PUF panels etc Partitions, False Ceiling and False Floorings: Types and Construction techniques, Construction details as per industry standards.	3	PO6, PO8, PO9, PSO2

#### Syllabus

Module 1	Plastics as a building material: types, properties, use, energy intensiveness, environmental impact assessment and recycling and up cycling of plastics such as polycarbonates, acrylics, PVC polymer films, and fibre reinforced plastic. Glass as a material: types, properties, use. Glass manufacturing in various types like plate, tinted, decorative, reinforced, laminated glass block, fibreglass, glass murals, partially coloured glass, etching of glass and its applications in building industry for both exteriors and interiors. Glass fabrication techniques, fibre reinforced composite materials and products. Aluminium and other materials: types, properties, use.
Module 2	Glass and Metal cladding of facades and building envelopes: Fixing and fabrication details. UPVC, PVC & FRP: Doors and windows and partitions Skylight in steel and glass: Principles and methods of construction and detailing. Walls: Sandwich panel walls, PUF panels etc Partitions: Fibre board, plaster of Paris, particle board, wood wool, metals, straw and any other materials introduced in the market including acoustic ceiling. False Ceiling and False Floorings: Gypsum board, Wooden, Aluminium, UPVC, PVC etc. Construction details as per industry standards.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Building Construction illustrated"	Francis D.K. Ching	John Wiley & Sons	2000
2	"Building Construction", Vol 1 and 2	W.B. McKay	Longmans, UK	1981
3	"Construction of Buildings", Volume 1&2	Barry	Blackwell Publishing Ltd., Oxford	2005



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### BUILDING SERVICES – IV (BUILDING AUTOMATION) (BS-IV)

COURSE CODE	23AR4126	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the philosophy of building automation systems and subsystems	2	PO6
CO2	Understanding about the communication and security systems	2	PO6
CO3	Applying the integration of building services into architectural design	3	PO6, PSO2
CO4	Applying the interaction and integration between building structure, systems, services, management, control, and information technology.	3	PO6, PSO2

#### Syllabus

Module 1	Building Automation Systems & Controls: Philosophy. Introduction to System configuration, system modules, distributed systems, communication protocol and on-line measurements. Fire protection, security, and energy management. Control objectives. Sensors, controllers, and actuators. Understanding the concept of Microprocessor based controllers & digital controls. Examples of subsystems such as - Digital Addressable Lighting Interface (DALI) and how it's useful to Architects.
Module 2	Communication and Security Systems: Voice communication systems, local area network, wireless LAN, Digital TV, CCTV, digital CCTV, teleconferencing, cellular phone system, and CABD. SMATV. Data networking. Short- and long-haul networks. Wideband network. Office automations. Public address/sound reinforcement systems. Digital public address system. Modern security systems.
Module 3	Integration of Services into Architectural Design: Introduction to Smart Building concept. Principles of grouping and integrating of horizontal and vertical distribution of all services in a multi- storeyed building/ large building. Services to include vertical transportation, electrical, communication, air conditioning and fire safety.
Module 4	Interaction and integration between building structure, systems, services, management, control, and information technology. Different Application & Design software available. Integrating service requirements into architectural design in an appropriate typology involving a simple scale project through sketches/ drawings.

#### Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	Intelligent Buildings: An introduction	Clements-Croome, Derek,	2014	Routledge,
2	Intelligent Buildings and Building Automation,	Shengwei Wang,	2010	Spon Press,
3	Smart Building Systems for Architects, Owners & Builders	James Sinopoli,	2010	Elsevier,



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### WORKING DRAWINGS-I (W D-I)

COURSE CODE	23AR4130	MODE	R	LTSPIN	0-0-4-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Applying teaching methods, instruct students in preparing detailed working drawings for effective execution at construction sites and impart knowledge of the essential components of working drawings, notations, and drawing standards.	2	PO1, PO7, PSO2
CO2	Applying methods of transmittals and record-keeping, integrate services drawings and detail various types of drawings. Apply the latest materials knowledge with specifications for updates.	3	PO6, PO8

#### Syllabus

Module 1	Introduction to working drawings: shop drawings / vendor drawings. An exercise in fundamental elements in a "Working Drawing-Plan" an assignment on a typical standard "Working Plan". Various formats for working drawing preparation, various types of vendor drawings, such as aluminium composite panels, steel doors, fire rated doors, curtain wall systems, aluminium windows, etc
Module 2	Working drawing details and Drawing: a. Developing Key plans, General Arrangement Plans, Part plans, Roof Plan / Terrace Plan, and the like. b. Excavation drawings, Foundation drawings, Centre-line drawings, Floor Plans, Sections, Elevations. c. Basic internal electrical and plumbing

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Building and Construction Authority. (2005).	CONQUAS-22.	Singapore: The BCA Construction Quality Assessment System.	2005
2	Architectural Drafting and Design. 5th Ed.	Jefferis, A. and Madsen, D.A.	New York: Thomson Delmar Learning.	2005
3	Architecture Annual.	Jeong, K-Y.	Seoul: Archiworld Co.	2010
4	Details in Architecture: Vol. I-V.	Joe, B. (Ed).	Victoria: The Images Publishing group.	2002
5	Plans Sections Elevations – Key buildings of the twentieth century.	Weston, R.	London: Laurence King Publishing.	2004
6	The professional practice of architectural working drawings. 4th Ed.	Osamu, A. W., Linde, R. M. and Bakhoun, N. R.	Hoboken: John Wiley & Sons.	2011



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### WORKING DRAWING - II (W D-II)

COURSE CODE	23AR4271	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Applying teaching methods, instruct students in preparing detailed working drawings for effective execution at construction sites and impart knowledge of the essential components of working drawings, notations, and drawing standards.	3	PO7, PSO2
CO2	Applying methods of transmittals and record-keeping, integrate services drawings and detail various types of drawings. Apply the latest materials knowledge with specifications for updates.	3	PO2, PO9, PSO2

#### Syllabus

Module 1	An overview of site marking procedure, “techniques/thumb rules” to ensure effective translation from “working drawings” to actual site execution, and developing Site Plan, Site Marking Plan, Site Grading/ Levelling Plan. Integration with schedule of joinery, schedule of hardware, finishing materials, method of dimensioning, appropriate section line markings.
Module 2	Developing elevations, sections, part sections, wall sections integrated with finishing materials, etc. Construction details for lifts, dumb waiters, escalators, travelers. External Plumbing Layout and details. 6. Details of Septic tank. An overview of “all service systems integrated drawings” and the effectiveness of “Building Information modelling – BIM” to achieve the same. “Working drawing titles”, drawing documentation/record keeping, drawing transmittals, revision updating / superseded drawings, and “as built drawings”

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	The BCA Construction Quality Assessment System.	Building and Construction Authority.	CONQUAS-22. Singapore	2005
2	Architectural Drafting and Design. 5th Ed	Jefferis, A. and Madsen, D.A.	New York: Thomson Delmar Learning.	2005
3	Architecture Annual.	Jeong, K-Y.	Seoul: Archi world Co.	2010



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### SYLLABUS OF COURSES UNDER PROJECT COURSES (PRI)





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### ARCHITECTURAL DESIGN STUDIO - I (BASIC DESIGN AND VISUAL ARTS) (ADS-I)

COURSE CODE	24AR1153	MODE	R	LTPS	0-0-9-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of the qualities of different elements as well as their composite fusions. An ability to engage and combine the elements of design in spontaneous as well as intentional ways to create desired qualities and effects	2	PO1, PO3, PS02
CO2	Development of required skills – observation / analysis / abstractions / interpretation / representations / expressions through models and drawings. Understanding of 3D Composition by involving students in a number of exercises which will help generation of a form from a two dimensional / abstract idea.	2	PO1, PO5, PS02

#### Syllabus

Module 1	Properties, qualities and characteristics of point, line, direction, shape, form, colour, texture and Light. Extraction of basic forms from natural and manmade environment. Enquiry into form both geometric and non-geometric entities. Exercises on Visual Composition and Pattern making. Understanding Architectural Aesthetics. Principles such as Balance, Symmetry, Asymmetry, Proportion, Scale, Harmony, Rhythm and Contrast. Exercises on Visual Composition and Pattern making, Logo design, Collage, Abstraction. Composition using different types of Grids – Orthogonal, Radial, etc. Sketching and Sculpting – techniques. Illustrations, Logo and Mural arts – Colour schemes, colouring techniques and Architectural Principles.
Module 2	Study of solids & voids to evolve sculptural forms & spaces; explore play of light & shade and application of colour. Introduction to external & internal forms, analytical appraisal of forms, their quality; Concept of space, interrelationship between space, volume and order; Variations in forms with planer juxtapositions. Anthropometric study and ergonomics human figure (including differently able persons), dimensions of furniture - relationship with human anthropometrics with freehand drawing of human figures, vehicles, trees, buildings etc. to have a better understanding of proportion.





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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Architecture - Form Space and Order	Francis D. K. Ching	Van Nostrand Reinhold Co., (Canada),	1979
2	Basic Visual Concepts and Principles for Artists, Architects and Designers	Charles Wall schlacgerm & Cynthia Busic- Snyder	McGraw Hill, New York	1992
3	Acrylic for Sculpture and Design	Lawrence Bunchy	West 33rd Street, New York, N.Y	1972
4	Basics Spatial Design	Exner. V, Pressel. D	Birkhanser	2009
5	Foundations in Architecture: An Annotated Anthology of Beginning Design Project	Owen Cappleman & Michael Jack Jordon	Van Nostrand Reinhold New York	1993



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### ARCHITECTURAL DESIGN STUDIO -II (ADS II)

COURSE CODE	23AR1256	MODE	R	LTPS	0-0-9-0	PRE-REQUISITE	24AR1153
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Apply anthropometric data, conduct desktop/case study and understand collected data towards framing parameters for House design and Cafeteria Design Cafeteria Design	3	PO2, PO4
CO2	Create Architectural Details for floated design exercise floated as per the semester complexity, Buildings and the presentation techniques of drawings	6	PO2, PO9, PSO2

#### Syllabus

Module 1	<p>Scale and Complexity: Familiarize students with architectural design process through small scale projects involving small span, single space, single use spaces with simple movement, predominantly horizontal, as well as simple function public buildings of small scale.</p> <p>Areas of focus/ concern:</p> <p>Design activity will be limited to the level of visual composition, architectural form and space, aesthetic and psychological experience of form and space in terms of scale, colour, light, texture, etc., function and need: user requirements, anthropometrics, space standards, circulation image and symbolism.</p> <p>Complexity- Up to 1 acres of site, one or two buildings with G+1 Floors max.</p>
Module 2	<p>Typology/ project</p> <p>Shop, exhibition pavilion, snack bar, petrol bunk, fire station, Residence. A House for self, Guest House, Farm house, Villa, Container house, Courtyard house, Tree house, house in an informal settlement etc</p> <p>Requirements: Case study sheets, Concept, Zoning sheets, Design Plan, Elevations, Sections and Sketching as per the project.</p>

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Time Saver Standards for Building Types",	Joseph De Chiara, Michael J Crosbie,	McGraw Hill Professional,	2001.



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Sl No	Title	Author(s)	Publisher	Year
2	"Human Dimension and Interior Space",	Julius Panero, Martin Zelnik,	Whitney Library of Design,	1975
3	"Time Saver Standards for Interior Design and Space Planning",	Joseph De Chiara, Julius Panero, Martin Zelnik,	McGraw Hill,	2001.
4	"Architects Data,"	Ernst Neuferts,	Blackwell,	2002.
5	Basic Visual Concepts and Principles for Artists, Architects and Designers,	Charles Wallschlaggerm & Cynthia Busic-Snyder,	McGraw Hill, New York	1992.
6	Foundations in Architecture: An Annotated Anthology of Beginning Design Project,	Owen Cappelman & Michael Jack Jordon,	Van Nostrand Reinhold New York,	1993.



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### ARCHITECTURAL DESIGN STUDIO -III (ADS III)

COURSE CODE	23AR2159	MODE	R	LTPS	0-0-9-0	PRE-REQUISITE	24AR1256
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Applying methods to understand and analyze the use, spaces, and concepts of residential activities, as well as applying methods to understand and analyze the spaces, connectivity, and standards of institution buildings.	3	PO2, PO4, PO10, PSO1
CO2	Create projects with design typologies such as Foundation School/Pre School/Public Health Care Centre/Restaurant/Museum/Library, labelled as Project 1 and Project 2.	6	PO2, PO7, PSO1

#### Syllabus

Module 1	This studio-based course synthesizes the knowledge gained from other courses and is central to the learning and practice of architecture. This course will engage in using conventional methods and linear processes of design to more exploratory nonlinear methods. The scale and complexity will increase progressively from lower semesters to senior semesters. Areas of concern/ focus: form-space relationships, spatial organization, behavioural aspects, especially those relating to children, site planning aspects, appropriate materials and construction  Complexity- up to 4 Acres of site, two to three buildings with G+2 Floors max. Introduction of Contours and slope analysis, Landscape and Building integration.
Module 2	Suggestive Typologies/ projects: Residential buildings, institutional buildings: Foundation School/Pre School/ Public Health Care Centre/ Restaurant /museum/ Library etc.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Time Saver Standards for Building Types",	Joseph De Chiara, Michael J Crosbie,	McGraw Hill Professional,	2001.
2	"Human Dimension and Interior Space",	Julius Panero, Martin Zelnik,	Whitney Library of Design,	1975
3	"Time Saver Standards for Interior Design and SpacePlanning",	Joseph De Chiara, Julius Panero, Martin Zelnik,	McGraw Hill,	2001.
4	"Architects Data,"	Ernst Neuferts,	Blackwell,	2002.



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### ARCHITECTURAL DESIGN STUDIO -IV (ADS IV)

COURSE CODE	23AR2261	MODE	R	LTPS	0-0-9-0	PRE-REQUISITE	24AR2159
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Application of anthropometry, circulation patterns, standards of various facilities	3	PO2, PO4, PSO1
CO2	Create the Design after the analysis of the rural planning, infrastructure, and settlement planning of a village (rural settlement) as per the needs of the settlement as Project 1. Propose a design depending on the village documentation and survey that is functionally, good community oriented and open spaces – Project 2	6	PO2, PO4, PO9

#### Syllabus

Module 1	<p>Creating a holistic understanding of the socio-cultural, geographic, and economic aspects that shape the rural environment as well as to expose the students towards the design of simple community-oriented buildings. A comprehensive study of a rural settlement through field visits and introductory lectures that is an exemplar of collective design evolved organically over a period. The students are exposed to conducting various surveys covering, physical, visual characteristics and demographic aspects which helps in understanding vernacular / traditional architecture involving local materials and construction techniques.</p> <p>To emphasis on the importance of designing built form and open spaces that meet the aspirations of the community. To enable the presentation of concepts through 2D and 3D presentation including sketches and model.</p> <p>Complexity: Up to 8 Acres, Contours incorporation, Climate responsive buildings. Introduction to Structure elements like Columns, Foundation in plans. Software's: AutoCAD, Sketchup</p>
Module 2	<p>Project:</p> <p>Projects involving public and community-oriented buildings - multi room, single use, small span, multiple storied, horizontal and vertical movement; active cum passive energy; comprehensive analysis of rural settlement in a hierarchical manner.</p> <p>Area of concern/ focus: Rural settlements and architecture, Community oriented design, Simple public buildings (not more than Ground+ 2 floors)</p> <p>Suggestive Typologies/ projects: Rural projects that involve studies and design at settlement and building level- noon meal centre, Elementary school, Anganwadi, Farmers Markets, Art and Craft Village, department store, higher secondary school, Entertainment centre, Sport Complex.</p>



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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Time Saver Standards for Building Types",	Joseph De Chiara, Michael J Crosbie,	McGraw Hill Professional,	2001.
2	"Human Dimension and Interior Space",	Julius Panero, Martin Zelnik,	Whitney Library of Design,	1975
3	"Time Saver Standards for Interior Design and Space Planning",	Joseph De Chiara, Julius Panero, Martin Zelnik,	McGraw Hill,	2001.
4	"Architects Data,"	Ernst Neufert,	Blackwell,	2002.





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### ARCHITECTURAL DESIGN STUDIO -V (ADS V)

COURSE CODE	23AR3164	MODE	R	LTPS	0-0-9-0	PRE-REQUISITE	24AR2261
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Analyse the use, the spaces and the concepts of different homes for the disabled. To understand and analyze the spaces, connectivity, and the standards of Institution buildings	4	PO2, PO4, PO6, PSO2
CO2	Design a Social oriented building. A Home for physically and mentally challenged- Project 1 To design an institution-oriented building, School of Architecture, Design Institutions. Project 2 Old age Home, orphan age, School for disabled, Campus Design, theme-based hotels, shopping mall, Resort etc.	6	PO2, PO4, PO6, PSO2

#### Syllabus

Module 1	<p>To explore the design of buildings addressing the socio – cultural &amp; economic needs of contemporary urban society. Understanding the importance of spatial planning within the constraints of development regulations in force for urban areas. Designing for large groups of people in a socially and culturally sensitive manner, considering aspects such as user perception, crowd behaviour, large scale movement of people, Identity of buildings. Emphasizing on the importance of understanding the relationship between open space and built form, built form to build form and site planning principles involving landscaping circulation network and parking. To explore computer aided presentation techniques involving 2D and 3D drawings and models asrequired.</p> <p>Scale and Complexity: Buildings and small complexes that address the social and cultural needs of contemporary urban life (residential. Commercial, institutional) with a thrust on experiential qualities; multi bayed, multiple storied and circulation intensive; passive and active energy.</p> <p>Areas of concern/ focus Behavioural aspects and user satisfaction socio-cultural aspects designing for the differently abled Building byelaws and rules. Appropriate materials and construction technique Climatic Conditions and its impact on Design.</p> <p>Complexity: Up to 10 Acres, Contours incorporation, Environment Positive Design, Structural Details in drawings.</p> <p>Introduction to Sustainable Design, Bylaws, Building Services material and innovation exploration</p> <p>Software's: Revit, Sketchup, Rendering Software</p>
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Module 2	Design Typology/ project: Housing Projects- detached, semi-detached, row housing, cluster housing, apartment; housing and facilities for other user groups- old age Home, orphanage, working women's hostel, home for physically and mentally challenged; School for disabled, Campus Design, theme-based hotels, shopping mall, Resort etc.
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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Campus Planning" - Society for College and University Planning, 1996.	Richard P. Dober,		1996
2	"Campus design in India",	Achyut Kanvinde,	American yearbook,	1969
3	"Site planning",	Kevin Lynch,	MIT Press, Cambridge,	1967
4	"Design Process: A Primer for Architectural and Interior Design",	Sam F. Miller,	Van Nostrand Reinhold	, 1995.



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### ARCHITECTURAL DESIGN STUDIO -VI (ADS VI)

COURSE CODE	23AR3267	MODE	R	LTPS	0-0-12-0	PRE-REQUISITE	24AR3164
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Expose the students to the challenges of designing functionally complicated buildings, having a complex array of activities and services. To familiarize the students to the task of coordinating integration of structural design and specialized building services in the framework of architectural design	3	PO2, PO4, PO10, PSO1
CO2	Design A Functionally Complex Building (Medium Rise Structure Example Hospital, Juvenile Correction Centre, Research and Development Centre), Project 2 Design A Shopping Mall or Students Hostel or Travellers Hostel, Conventional Center, 5-star hotel Etc.	6	PO2, PSO1

#### Syllabus

Module 1	<p>The focus of the studio is on functionality and integration of advanced technology and services. The studio enables understanding of the complex mechanisms of designing services intensive buildings in tight urban context, having multiple levels. The special emphases are on utilitarian parameters, space optimisation, conformance with regulatory requirements, integration of structural systems and building services (HVAC, fire, electrical, communication, plumbing etc.) in architectural layout and construction technology. The studio encourages the students to explore modern automation and intelligent systems for building management and energy conservation. They will learn about site planning, Vehicle &amp; Pedestrian traffic then the site, and landscaping in tight spatial context.</p> <p>Complexity: 6 to 12 Acres, Contours incorporation, Sustainable Design Features, Structural Details in drawings, bylaws, Services Introduction to Advanced Building Services, landscape specifications, material and innovation exploration, Energy Simulation Software Software's: Revit, Sketchup, Rendering Software</p>
Module 2	<p><b>STUDIO EXERCISE</b> Emphasis on the design of services intensive, multi-storeyed, buildings in tight urban spatial context, such as buildings for Health care, Hospitality, Institutional or multifunctional commercial usage, Shopping mall/Students hostel or travellers hostel, Conventional Centre etc</p>

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Hospital Design	Kanvinde A.	American	1969



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### ARCHITECTURAL DESIGN STUDIO -VII (ADS VII)

COURSE CODE	23AR4168	MODE	R	LTPS	0-0-12-0	PRE-REQUISITE	24AR3267
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Application of the integration of services, sustainable building and anthropometry, circulation patterns.	3	PO2, PO4, PO10, PSO1
CO2	Create and design spatial planning and functionality in Low. Rise. High Density Project. Project 1. To analyze the spaces, connectivity, and the standards of sustainable and service intensive building. Case study. To create design of a sustainable service integrated intelligent. Green building in High Rise (Project 2)	6	PO2, PO4, PO9

#### Syllabus

Module 1	<p>Issues related to housing shortages, basics of housing finance, incremental housing, sites and services schemes, slums and squatter settlements are to be discussed in the class. The students are expected to design in a climate responsive and environment friendly way while planning medium sized housing complexes. The students are especially expected to showcase knowledge on the appropriate technology for low-cost housing, Landscape Design, Disaster Resilient Buildings and Quantity Estimation &amp; Specifications.</p> <p>Complexity: Up to 15 Acres, Contours and slope analysis, Sustainable Design Features, Structural Details in drawings, bylaws, Services, Landscape Specifications, Low-cost housing techniques.</p> <p>Introduction to Green Building Certification and Dynamic facades, Quantity Estimation &amp; Specifications, Rhino.</p> <p>Software's: Revit, Sketchup, Rendering Software, Energy Simulation Software</p>
Module 2	<p>They are expected to be conscious about the need for energy conservation through passive design. They will apply advanced simulation and modelling techniques to orient their buildings and decide energy performance parameters. Sample quantity estimates and specifications are to be prepared.</p> <p>Project typology: Gated Community, Slum Development, stack housing Mixed used high rise, Commercial office like IT office, world trade centre's etc.</p>

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Site Planning for Cluster Housing	Untermann, R. and Small, R.	John Wiley & Sons	1977
2	Tall Buildings Artistically Reconsidered	Huxtable, A-L.	University of California Press	1984
3	Typology+: Innovative Residential Architecture	Markus, K., Rollbacher, R., Herrmann, E., Wietzo	Birkhauser	2009



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### URBAN DESIGN STUDIO (UDS)

COURSE CODE	23AR4270	MODE	R	LTPS	0-0-12-0	PRE-REQUISITE	24AR4168
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Analyse the role of Services at higher scale in Urban level and apply the integration of services into intelligent sustainable building case study case study	4	PO7, PO8, PSO2
CO2	Create High Density Urban facility as a solution to the Urban area problems, Current issues. (Project-1) Analyze the spaces, Transformation according lifestyle changes in Urban population, connectivity, and the standards of sustainable and service intensive building. Case study. Create design of a sustainable service integrated intelligent green building High Density Project. (Project 2)	6	PO3, PO10, PSO1

#### Syllabus

Module 1	<p>Students are to be exposed to the complexities of large-scale architectural projects, often involving a group of buildings in a public realm, and having multiple stakeholders. Students are encouraged to look beyond the concerns of individual building project to address the interface between public and private realm; and contextualize their design interventions to the surrounding urban environs. The studio enables the students to apply the lessons learnt in the Urban Design class. The students are expected to carry out site analysis and site planning at a real-life location, considering its location context, physical features, views, orientation, volumetric analysis and figure ground study of the built-form characteristics, visual imageries, streetscape and skyline analysis, pedestrian, vehicular circulation pattern, and utility networks. They also try to understand the correlation between physical, socio-cultural, environmental, and socioeconomic dimensions of the built environments, to identify opportunities and constraints associated with large-scale urban interventions.</p> <p>Complexity: Up to 20 Acres, Contours and slope analysis, Context analysis, Survey reports, Environment positive Design, Structural Details in drawings, bylaws, Services, Landscape Specifications.</p> <p>Introduction to Feasibility report and Material/Special study</p> <p>Software's: Rhino, Revit, Sketchup, Rendering Software, Energy Simulation Software</p>
Module 2	<p>Students are then expected to apply this understanding to a realistic site to create physical environments through basic tools of master planning, such as: movement networks, open spaces, suggestive built form, infrastructure network and planning norms.</p> <p>Design exercise could be any medium to large scale project in the public domain, situated within an existing (and preferably compact) urban fabric, such as: redevelopment of commercial areas, waterfront development, transit-hubs, market squares, densification along transit corridors, mixed use complexes. If intervention is in heritage areas, conservation</p>





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strategies 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. The projects are strictly following the contemporary based lifestyle.

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Public Places Urban Spaces	Carmona, M., Heath, T. and Tiesdell, S.	Oxford: Architectural Press	2010
2	Urban Design: A Typology of Procedures and Products	Lang, J. T.	Oxford: Architectural Press	2005
3	The Urban Design Reader	Larice, M. and Macdonald, E. Ed	Routledge Urban Reader Series. Abingdon, Oxon: Routledge	2013
4	Urban form and space.	Krier, R.	London: Academy Editions	1979
5	Good city form. Boston	Lynch, K.	MIT Press.	1984





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### RESEARCH METHODOLOGY (RM)

COURSE CODE	23AR4131	MODE	R	LTPS	2-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the basics of the research and process.	2	PO4, PO3, PO9, PSO2
CO2	Understand about the research methodologies - Quantitative	2	PO3, PO9, PSO2
CO3	Understand about the research methodologies - Qualitative	2	PO3, PO9, PSO2
CO4	Apply the research in formulating the scientific manuscripts and make it publishable	3	PO3, PSO2

#### Syllabus

Module 1	Understand the fundamentals of research and its significance in academic and professional settings.
Module 2	Describe quantitative research methodologies and their application in data collection and analysis. Examples: Survey Research, Experimental research, Longitudinal research, Secondary Data Analysis etc.
Module 3	Explain qualitative research methodologies and their relevance in exploring complex phenomena and subjective experiences. Examples: Interviews, Focus group, Observation, Content analysis etc.
Module 4	Analyze and critique journal articles to evaluate research methods, findings, and conclusions.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Research Methodology: A Step-by-Step Guide for Beginners"	Ranjit Kumar	SAGE Publications	2020
2	"Research Design: Qualitative, Quantitative, and Mixed Methods Approaches"	John W. Creswell	SAGE Publications	2017
3	"Research Methodology: Methods and Techniques"	C.R. Kothari	New Age International	2017



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### ARCHITECTURAL THESIS (AT)

COURSE CODE	23AR5273	MODE	R	LTPSIN	0-0-15-0	PRE-REQUISITE	24AR5172
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO 1	Applying the Architectural Thesis, Writing Synopsis, Studies Related to Project. Literature study in relation to literatures, Desktop Studies, Case studies.	3	PO1, PO4
CO2	Create a design from the Site Study, Application of Data & Information Collected regarding project topic, Preliminary Drawings production. Creation of final Viable drawings & Building Services, Physical & Virtual Model and Report making.	6	PO1,PO3,PO6, PSO2

#### Syllabus

Module 1	<p>The Architectural Thesis is the culmination of the development of the student's knowledge, attitudes, and skills over the course of studies in architecture. It is an occasion for exercising conscious choices in the field, based on the student's personal abilities and inclinations, and for testing out his commitment. The student, in consultation with the faculty, is expected to demonstrate through an imaginative approach, his expertise in effecting positive changes in our built environment.</p> <p>Students can choose a topic of their choice in terms of design potential and/ or idea exploration to be taken up for completion. The topic could be project based with specific areas of study/ approach or study/ approach based leading to a project.</p> <p>Complexity: 10 to 30 Acres, Contours and slope analysis, Environment positive Design, Structural Details in drawings, bylaws, Services, Landscape Specifications.</p> <p>Introduction to Feasibility report and Material/Special study</p> <p>Software's: Rhino, Revit, Sketchup, Rendering Software, Energy Simulation Software</p>
Module 2	<p>If the latter, care should be taken to choose topics that can lead to sufficient architectural design component. Students should submit the topic for approval with a rough outline of the nature of the project, area of interest, study and design scope, challenges, possible case studies, methodology and outcome.</p> <p>Tentative topics to study: The areas of study/research/design can include any of the broad areas of the discipline – contemporary needs of society, history, theory, sustainability, structural or service-oriented design, projects that involve complex planning and integration of several aspects, appropriate architecture, urban design, contemporary processes, social housing, urban oriented architectural design, conservation oriented architectural design, etc.</p>



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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Building Type Basics	Stephen A. Kliment	Wiley	
2	The Portfolio – An Architecture Student's Handbook	Igor Marjanovic, Katerina Redi Ray, Lesley NaaNorleLokko	Routledge	2003
3	Climate Responsive Architecture	Arvind Krishnan & Others	TATA McGraw Hill Publishing Company Limited	2007



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### SYLLABUS OF COURSES UNDER SKILL ENHANCEMENT COURSES (SEC)



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### SITE SURVEY AND ANALYSIS (SSA)

COURSE CODE	23AR2110	MODE	R	LTPS	0-0-0-3	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding Surveying using Chain and Compass. Understanding Surveying using Dumpy Level and Theodolite.	2	PO4, PO8, PSO2
CO2	Applying survey practices in field using Chain, Compass, Dumpy Level, Theodolite, Total Station and Alidade	3	PO4, PO10, PSO2

#### Syllabus

Module 1	Introduction: Reading of survey Maps, understanding of features and undulations of Ground. Scales used in Plotting. Study of landforms, topography and contours, slope analysis, grading process; graphic representations of landforms. Principles, definitions, units, scales, symbols, and instruments used in Surveying, common errors in surveying and their corrections. Linear Measurements: Measurements in horizontal plane, linear measurements with chain & tape, setting out & survey stations, survey accessories, survey lines, open & closed traverse, chaining & offsetting, direct & indirect ranging, logbooks, field boundaries, field area estimation. Compass survey, bearings & angles, local attractions, errors in compass survey.
Module 2	Contours in Landforms: Characteristics, contour intervals, direct & indirect methods of contouring, block contour surveys, profile levelling, longitudinal & traverse cross sections, gradients, contouring methods & equipment, plane-table, plotting contours & profiles, estimating areas & volumes. Sloping Landforms and Levelling: Measurements along sloping landforms, principles, definitions, methods, instruments, & staff required for levelling, simple & differential levelling, dumpy level, adjustments, hand signals, reduced levels, rise & fall methods, errors in levelling, level tube & barometric levelling. Precision methods in Landforms Survey & Measurement Theodolite surveying, temporary adjustments, horizontal & vertical angles, closing errors and balancing traverse, automated & digital surveying, Total station, G.P.S, Aerial Photography, digital levels, auto-levels.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Interpretation of Topographic Maps.	Miller, V. C. and Westerback, M. E.	Columbus: Merrill.	(1989).
2	Site Planning.	Lynch, K., and Hack. G.	Cambridge: Maple-Vail Inc.	(1984). 3rd Ed.



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### COMPUTER STUDIO- I (MS OFFICE, AUTOCAD 3D) (CS-I)

COURSE CODE	23AR2157	MODE	R	LTPS	0-0-0-3	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the basics of computer system and their supporting technologies like MS Office.	2	PO1, PO2, PSO1
CO2	Apply the learned skills in preparation of documentation reports, analysis reports, and audio-visual presentations.	3	PO1, PO2, PSO1

#### Syllabus

Module 1	Technology of small computer system, computer terminology operation principles of P.C, introduction to application software, and graphic system, and use of printers, scanner, plotter, File management, etc. Understanding Bitmap images and Vector Graphics, Image size and Resolution. Basic Tools for Editing and Creating Graphics. Introduction to various software for documentation, presentation & drawing purposes. Simple operations such as creating, editing, formatting, saving, and printing documents. Familiarizing the use of scanners, printers, plotters etc. Introduction to Applications of MS Office in presentation: Microsoft Word, Microsoft Power Point, Microsoft Excel, Adobe Page Maker. Use of spreadsheet and for various architectural calculations-estimation, area calculations, project reports. Preparations of templates for regular repetitive functions.
Module 2	Introduction to AutoCAD as 2D drafting tool Digital drawings tools, drawing lines and shapes, modifying lines and shapes, drawing with accuracy and speed. Organizing plans, sections, and elevations, drawing and printing to scale, text styles and sizes, hatches, and dashed lines. Stencils and blocks, advanced editing tools, and dimensioning drawings. 3D modelling using AutoCAD Introduction to 3D-modelling technique using AutoCAD. 3D basics: Axes, Planes and Faces. 3D Object Modification: Rotate, Mirror, Array and Scale. 3D Boolean operations: Union, Subtract, Intersect

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"The Illustrated AutoCAD 2002 Quick Reference"	Ralph Grabowski,	1 <sup>st</sup> edition, Cengage Learning,	2002
2	"AutoCAD 2000: A Problem-Solving Approach"	Shamtikoo,	DelmarCengage,1999.	2000
3	"CAD for Interiors beyond the basics"	Fiorello. J. A.,	Wiley publications	2011





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### COMPUTER STUDIO- II

#### (IMAGE MAKING AND 3D MAKING SOFTWARE) (C S-II)

COURSE CODE	23AR2262	MODE	R	LTPSIN	0-0-0-3-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand and learn to use of image editing software, graphics and animation software's.	2	PO1, PO2, PO6, PSO1
CO2	Apply the tools of sketch up or equivalent software to create a detailed 3D model by working in collaboration by application of advanced tools	3	PO1, PO2, P10, PSO1

#### Syllabus

Module 1	Introduction of various software available for Architectural presentation such as Photoshop & Coral. Image doctoring and manipulation using computer software for graphics and animation (Photoshop and Flash).
Module 2	Building Modelling and basic rendering techniques, using 3DSMax or Sketchup or equivalent. Advanced Building Modelling and basic rendering techniques, using 3DSMax or Sketchup or equivalent.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"Mastering Autodesk Revit 2017 for Architecture"	Marcus Kim, Lance Kirby, Eddy Krygiel	Wiley India	2016
2	"Exploring Autodesk Revit 2017 for Architecture"	Prof Sham Tickoo Purdue Univ	CADCIM, Technologies, 13 <sup>th</sup> Edition	2016



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### COMPUTER STUDIO- III

#### (BUILDING INFORMATION MODELLING) (C A- III)

COURSE CODE	23AR3165	MODE	R	LTPS	0-0-0-4	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand interface, workspace, and utilization of tools of 3D modeling software applies the required tools and components in building a 3D model. To create documentation reports, analysis reports, and audiovisual presentations.	2	PO1, PO2, PO10, PSO2
CO2	Understand, visualize the space and apply the tools of BIM software, identify the need of tools of BIM software. To create a detailed 3D model by working in collaboration by application of advanced tools	2	PO1, PO2, PO7, PSO2

#### Syllabus

Module 1	: Explain the uses of BIM (building information Modelling), touching upon the Concepts used in 2D Drawing and extending to 3D Modelling, Basic awareness on Interface, Setting up workspace. 3D modelling using Walls – Windows – Doors – floors – Slabs – Staircase – Railing – Furniture. Basic editing of components. Using Cross Sections Tool. Exporting 3D Model to Architectural 2D- Drawings (Plans – Elevations – Sections – Details.).
Module 2	Introduction – Applying materials – Creating and Editing materials – Setting up Camera – Rendering settings – Enhancing final output using Image editing software. Curtain Walls – Columns – beams – Massing – working in collaboration. Adding Architectural Elements – Creating components – Rendering in Cloud. Integration of all services and structural components using Building information modelling.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	“Mastering Autodesk Revit 2017 for Architecture”,	Marcus Kim, Lance Kirby, Eddy Krygiel	Wiley India	2016
2	“Exploring Autodesk Revit 2017 for Architecture”	Prof Sham Tickoo Purdue Univ	CADCIM, Technologies, 13 <sup>th</sup> Edition	2016



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### SYLLABUS OF COURSES UNDER PROFESSIONAL ABILITY ENHANCEMENT COMPULSORY COURSES (PAECC)



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### BUILDING CONSTRUCTION AND MANAGEMENT (BCM)

COURSE CODE	22AR4232	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the Objectives and Methods of project Management System	2	PO3, PO7 PSO1
CO2	Understand various Tools and Techniques to facilitate efficient management of Projects	2	PO3, PO8 PSO1
CO3	Analyze Project cost model and steps involved in cost optimization	2	PO6, PO8, PSO1
CO4	Applying Scientific Evaluation Techniques to Manage Project Durations and resources with Examples	3	PO8, PSO1

#### Syllabus

Module 1	Introduction to Project Management: Project management concepts-objectives, planning, scheduling Controlling and role of decision in project management. Traditional management system, Gantt's approach, Load chart. Progress Chart, Development of bar chat, Merits and Demerits.
Module 2	Project Programming and Critical Path Method: Project Network-Events Activity, Dummy, Network Rules, Graphical Guidelines for Network, Umbering the events, Cycles, Development of Network-planning for Network Construction, Models of Network construction, steps in development of Network. Work Break Down Structure, hierarchies. Concepts: critical path method-process, activity time estimate, Earliest Event time, Latest allowable Occurrence time, start and finish time of activity, float, critical activity, and critical path-problems.
Module 3	Analysis: Cost model-Project cost, direct cost, indirect cost, slope curve, Total project cost, optimum duration contracting the network for cost optimization. Steps in cost optimization, updating, resource allocation-resource smoothing, resource levelling.
Module 4	Programming Evaluation Review Technique: Pert network, introduction to the theory of probability and statistics. Probabilistic time estimation for the activities for the activities of PERT Network. Computerized Project Management: Introduction: Creating a new project, building task. Creating resources and assessing costs, Refining your project. Project Tracking-Understanding tracking, recording actual. Reporting on progress. Analysing financial progress.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Construction project management - Guidelines, Bureau of Indian Standards	BIS	BIS (2009),	
2	Construction Project Management: Theory and Practice,	Jha, K N	Pearson Education India	2015



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3	Guidance on Project Management,	ISO	International Organization for Standardization.	2013
4	Project Management Body of Knowledge (PMBOK),	Project Management Institute	PMI	2017
5	Project Management: The Managerial Process	Erik Larson and, Clifford Gray	McGraw Hill Education; Sixth edition (1 July 2017)	





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### PRACTICAL TRAINING / INTERNSHIP (PT)

COURSE CODE	23AR5172	MODE	R	LTPS	0-0-30-0	PRE-REQUISITE	24AR4270
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the preparation of professional architectural portfolio and resume. Apply Academic architectural skills in various projects while working in office	2	PO3, PO8
CO2	Evaluate attributes of project, based on discussions with Chief Architect and clients. Site supervision during execution and coordination with the agencies involved in the construction process.	5	PO5, PO9, PSO2

#### Syllabus

Module 1	Practical Training will be done in offices/ firms in India in which the principal architect is registered with the Council of Architecture. If students opt for offices/ firms abroad, they need to check that the Principal Architect is registered with the Country/ Region's Approving Authority. The students are expected to work on presentation/ working drawings, specifications, and quantity estimation. The students are also expected to familiarize themselves with coordination of structural and services drawing with architectural drawings. It is desired that the students undertake site visits and understand construction practices.
Module 2	The progress of practical training will be assessed periodically internally through submission of logbooks along with work done by the students in terms of drawings, reports, etc., along with the regular progress report from the employers. The students are also required to submit a report describing various concepts learnt during training, experiences of site visit and estimation / costing activities etc.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	NA			



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### ARCHITECTURAL PROFESSIONAL PRACTICE (A.P.P)

COURSE CODE	22AR5235	MODE	R	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Expose students to the daily realities of an architectural practice through the Training	2	PO5
CO2	Facilitate an understanding of the evolution of an architectural project from design to execution.	2	PO8
CO3	Enable an orientation that would include the process of development of conceptual ideas, presentation skills.	2	PO9
CO4	Involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure.	2	PO6, PSO2

#### Syllabus

Module 1	<b>Introduction:</b> Architecture profession Importance of Architecture Profession, role of Architects in the society, Architects' Act 1972, Amendments & Provisions, registration of architects, relations with clients, contractors, consultants, public authorities. Ways of getting works; types of works, works partly executed by other architect; precautions to take before taking up the work; conditions of engagement between the architect and client. Role of Council of Architecture and Indian Institute of Architects, functions, constitution, and rules & regulations. Code of professional conduct & Ethics, Social responsibility, Publications.
Module 2	<b>Scope of Work:</b> Practicing Architecture Scope of work of an architect, Schedule of services, drawings to prepare, Terms & conditions of engagement, letter of appointment. Private practice, types of offices/firms, responsibilities & liabilities. Salaried appointment in public & private sector jobs, Architectural Competitions procedure. Scale of charges, applicable building byelaws, municipal approvals, development controls, zoning regulations, NBC, Master plan, Zonal plan.
Module 3	<b>Architect's Office:</b> Architect's Office Architect's office management, organization structure, responsibility towards employees, consultants & associates, maintenance of accounts, filing of records, balance sheet, Income tax, Service tax, Professional tax. Copy rights and patenting, correspondence, documentation, drawings, conducting meetings, Clerk of works, inspection, works measurement, certificate of payment to contractors, applicable legislations, registration of properties, stamp duty; insurance for new work and additions; insurable value of property, claim for damages.



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Module 4	<p>Arbitration, Valuation and Easements Need/Scope of Arbitration, Indian Arbitration act, arbitrators, umpires, appointment, conduct, powers, duties, Sole/Joint arbitrators, Arbitration procedure, awards &amp; impeachment. Techniques/elements of valuation, factors affecting valuation of land/building, compensation on acquisition, lease renewal/extension, standard rent, Cost of sale, Purchase &amp; Mortgage. Easements, types, rights &amp; features; acquisition/extinction/protection; Interim/permanent/ mandatory injunctions. dilapidation, insurance, estate development. Consumer protection act.</p> <p>Architectural profession in the global market International Architectural competitions, Globalization, meaning &amp; advantages, WTO/GATS, their relevance to architectural profession in India, Architectural practices in US, UK, Middle East &amp; South Asian countries, Pre-requisite for Indians to work in other countries &amp; vice versa, impact of IT</p>
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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Architectural Practice and Procedure 1.	Apte, V. S.	Pune: PadmajaBhide.	2008
2	The architect in practice. 9th Ed.	Chappell, D. M. And Willis, A.	Oxford: Blackwell Publications.	2005
3	TQM and ISO 9000 for architects and designers.	Charles, E.	New York: McGraw-Hill.	1996
4	Architects (Professional conduct) Regulations, Architectural Competition guidelines	COA	Council of Architecture Publications.	1989
5	Handbook of Professional Documents.	COA	Council of Architecture.	2005
6	The Beginner's Guide to Real Estate Investing	Eldred, G. W.	John Wiley & Sons.	2008
7	Architect? a candid guide to the profession.	Lewis, R. K.	Cambridge: MIT Press.	1985
8	Professional practice.	Namavati, R.	Mumbai: Lakhani Book Depot.	1984
9	Valuation of Real Properties.	Rangwala, S. C.	charotar Publications.	-
10	The Discipline of Architecture.	Piotrowski, A. and Williams, J.	University of minnesota Press.	2001
11	Architect's Practice.	Scott, J. J.	London: Butterworth. & WTO and GATT	1985



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### SYLLABUS OF COURSES UNDER HUMANITIES ART AND SOCIAL SCIENCES (HAS)





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### HUMAN VALUES, GENDER EQUALITY AND PROFESSIONAL ETHICS(HVGE&PE)

COURSE CODE	23UC0026	MODE		LTPS	0-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand and analyse the essentials of human values and skills, self-exploration, happiness, and prosperity.	2	PO1
CO2	Evaluate coexistence of the “I” with the body.	5	PO4
CO3	Identify and associate the holistic perception of harmony at all levels of existence.	3	PO5
CO4	Develop appropriate technologies and management patterns to create harmony in professional and personal lives.	4	PO10

#### Syllabus

Module 1	Unit 1: Introduction to Human Values: Understanding Value, Self-exploration as the Process for identifying <i>Value</i> , Continuous Happiness and Prosperity - The Basic Human Aspirations, Right Understanding, Relationship and Physical Facilities, Happiness and Prosperity – Current Scenario, Method to fulfil the Basic Human Aspirations; Harmony in the Human Being: Understanding the Human Being as Co-existence of Self ('I') and Body, Discriminating between the Needs of the Self and the Body, The Body as an Instrument of 'I', Understand Harmony in the Self('I'), Harmony of the Self ('I') with the Body,
Module 2	Unit 2: Understanding Harmony in the Family and Society: The Basic Unit of Human Interaction, Values in Human-to-Human Relationships, Vision for the Universal Human Order; Harmony in the Nature (Existence): Understand Harmony in the Nature, Interconnectedness, Self-regulation and Mutual Fulfilment among the Four Orders of Nature, realizing 'Existence is Co-existence' at All Levels, The Holistic Perception of Harmony in Existence.



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Module 3	<p>Unit 3:</p> <p>What is Gender, and Why Should We Study It? Gender Equality Milestones, The Context Today; Socialization: Making Women, Making Men: Preparing for Womanhood, Preparing for Manhood, Different Masculinities, Unrecognized and Unaccounted For, Wage Differentials between Women and Men, Women in the Working Environment;</p> <p>Unit 4:</p> <p>Being Boy: A Village Boyhood, School Days, College Styles, Ek Ladki Ko Dekha Toh; Sexual Harassment: SAY NO! Sexual Harassment, not 'Eve-Teasing', Consent and Relationships, Coping with Everyday Harassment; Becoming Man: A Dangerous Model of Masculinity, Changing Masculinities, Imprints of Masculinity, Mothers, Fathers and Family.</p>
Module 4	<p>Unit 5:</p> <p>Implications of the Values and Gender Equality – a Look at Professional Ethics: Natural Acceptance of Human Values, Definitiveness of (Ethical) Human Conduct, A Basis for Humanistic Education, Humanistic Constitution and Universal Human Order, Competence in Professional Ethics, Holistic Technologies, Production Systems and Management Models - Typical Case Studies, Strategies for Transition towards Value-based Life, Women in the Working Environment and Profession</p>

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	A Foundation Course in Human Values and Professional Ethics. First Edition,	Gaur, R. R., Sangal, R., & Bagaria, G. P.	Excel Books	2010
2	2., small is beautiful: A study of Economics as if People Mattered,	E F Schumacher	Blond & Briggs, Britain	1973
3	How the Other Half Dies	Sussan George	Penguin press, reprinted	1986, 1991.
4	"Towards A World of Equals ABilingual Textbook on Gender",	Suneetha, Uma Bhargubanda, Duggirala Vasanta, Rama Melkote, Vasudha Nagaraj, Asma Rasheed, Gogu Shyamala, Deepa Sreenivas and Susie Tharu	Telugu Akademi, Hyderabad,	2015



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### DESIGN THINKING AND INNOVATION (DTI)

COURSE CODE	24UC1203	MODE	R	LTPSIN	2-0-2-0-0-0	PRE-REQUISITE	Nil
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#### Course Outcomes

CO#	CO Description	BTL	PO/PSO Mapping
CO1	Understand the importance of Design thinking mindset for identifying contextualized problems	2	PO2, PO6
CO2	Analyze the problem statement by empathizing with user	4	PO3, PO7
CO3	Develop ideation and test the prototypes made	3	PO5, PO6, PO7
CO4	Explore the fundamentals of entrepreneurship skills for transforming the challenge into an opportunity	2	PO5, PO8

#### Syllabus

Module 1	<p>Introduction to Design Thinking and Innovation</p> <p>Introduction to design thinking and its principles</p> <p>Learning, listening, observation, dialogue, and reading in the context of design thinking</p> <p>Design definitions and stories: desirability, feasibility, viability, mystery, heuristics, algorithm, requirements, patterns, connect, blind spots</p> <p>Laws of Design Thinking: less is more, last 2% equals 200%, theory of prioritization</p> <p>Design mind: definitions, 5 forces of growth (SEPIA), 5 frictional forces (DCAFE), 3 capacity levers (VAL)</p>
Module 2	<p>Design Thinking Process</p> <p>Overview of the design thinking process</p> <p>Design thinking for contextualized problem-solving</p> <p>Incorporating sustainable development goals into design thinking</p> <p>Design framework (L0)</p> <p>Empathy research: understanding user needs and perspectives</p> <p>Persona development: creating user profiles</p>



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	Customer journey mapping: visualizing user experiences Define phase: asking the right questions and problem statement formulation
Module 3	Ideation and Prototyping Ideation techniques: brainstorming and generating creative ideas Identifying patterns and anti-patterns in ideation Evaluation of ideas using different criteria (10/100/1000 gm) Prototyping and testing: translating ideas into tangible prototypes
Module 4	Entrepreneurial Innovation Introduction to innovation management Basics of business models and their role in innovation Financial estimation for innovation projects Pitch decks: creating persuasive presentations for innovation Considerations for intellectual property rights (IPR) in innovation

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Design Thinking in Classroom	David Lee	Ulysses Press	2018
2	The Art of Innovation Lessons in Creativity from IDEO	<u>Tom Kelley</u>	IDEO	2001
3	The Design Thinking Play Book	Michael Lewrick, <u>Patrick Link</u> & Larry Leifer	Wiley Press	2018
4	Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation	Tim Brown	Harper Business	2009
5	Unmukt- Science and Art of Design Thinking	Arun Jain	Arun Jain and School of Design Thinking	2019



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### ECOLOGY AND ENVIRONMENT(EE)

COURSE CODE	23UC0009	MODE	R	LTPSI	0-0-0-0-2-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the importance of Environmental education and conservation of natural resources	2	PO9
CO2	Understand the importance of ecosystems and biodiversity	2	PO7
CO3	Identify critically about individual roles in prevention of pollution. An Environmental Studies will be enabled to do independent research on human interactions with the environment	2	PO7
CO4	Understanding the environmental science knowledge on solid waste management, disaster management and EIA process Recognize the knowledge on environmental legislation, disaster management and EIA process.	2	PO6

#### Syllabus

Module 1	The Multidisciplinary nature of Environmental Studies - Natural Resources- Forest resources. Mining its impact on environment - Water resources - Mineral resources-.
Module 2	Energy resources - Land resource s- Soil erosion. Ecosystems - Biodiversity and its Conservation Environmental Pollution - Soil waste management - Electronic waste management, biomedical waste management. Disaster management -. Environmental Legislation Environmental Impact
Module 3	Environmental science knowledge on solid waste management, disaster management and process.

#### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Environmental Studies",	Anubha Kaushik, C.P.Kaushik	New Age International	2007
2	Environmental Studies	Benny Joseph	Tata McGraw-Hill companies	2009





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### LANGUAGE SKILLS (LS)

COURSE CODE	24UC1103	MODE	R	LTPSIN	2-0-2-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the language Mechanics in Basic Grammar & Interactive Listening & Speaking	2	PO9, PO10, PSO 1
CO2	Understand the Pronunciation of Language through Role-plays	2	
CO3	Apply different reading techniques and answer the Comprehension Passages	3	
CO4	Apply various techniques to make Paragraph development and Essay Writing and Letter Writing	3	
CO5	Apply Life Skills to enhance the Employability	3	PO9, PO10, PSO 1

#### Syllabus

Module 1	A. Discuss people you admire (review of tenses, Character adjectives) Discuss a challenge questions) B. Discuss a challenge (Questions, Trying and succeeding) C. Explain what to do and check understanding (Rapid Speech) D. Give advice on avoiding danger (Future time clauses and conditionals) Breaking off a conversation, Explaining and checking understanding. E. Discuss dangerous situations (Narrative tenses, Expressions with 'get') F. Give and respond to compliments (Intonation in Question Tags, Agreeing using question tags; giving compliments and responding)
Module 2	Discuss ability and achievement (multi-word verbs, Ability and achievement) Discuss sports activities and issues (present perfect and present perfect continuous, words connected with sports). C. Make careful suggestions (Keeping to the topic of the conversation; Making careful suggestions) D. Discuss events that changed your life (used to and would, cause and result)
Module 3	A. Discuss choices, discuss changes (infinitives and in forms, the passive) B. Introduce requests and say you are grateful (Consonant sounds) C. Discuss living in cities (too / enough; so / such, describing life in cities) D. Discuss changes to a home (Causative have / get Film and TV; Houses) E. Imagine how things could be (Stress in compound nouns) F. Discuss personal finance (First and second conditionals)





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Module 4	<p>A. Discuss moral dilemmas and crime (Third conditional; should have + past participle), Stressed and unstressed words; Sound and spelling</p> <p>B. Discuss new inventions (Relative clauses), Discuss people's lives and achievements Reported speech; Reporting verbs, verbs describing thought and knowledge.</p> <p>C. Express uncertainty (Linking and intrusion, Clarifying a misunderstanding)</p> <p>D. Speculate about the past (Past modals of deduction Adjectives with prefixes)</p> <p>E. Discuss life achievements (Wishes and regrets, Verbs of effort)</p> <p>F. Describe how you felt (Consonant clusters, describing how you felt; Interrupting and announcing news)</p>
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### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	EMPOWER	Andrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis-Jones	Cambridge University Press	2022
2	PRACTICAL ENGLISH USAGE, 4TH EDN: Michael Swan's guide to problems in English (Practical English Usage, 4th edition)	Michael Swan	OXFORD	2022
3	Word Power Made Easy	Norman Lewis	OXFORD	2022



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### COMMUNICATION SKILLS (CS)

COURSE CODE	24UC1204	MODE	R	LTPSIN	2-0-2-0-0-0	PRE-REQUISITE	NIL
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#### Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Analyse and construct complex sentences, including compound-complex sentences, with proficiency and a high level of proficiency in using punctuation marks effectively, and develop an understanding of subtle grammatical nuances and apply them accurately in their writing. Speaking	3	PO10, PSO1, PSO2
CO2	Demonstrate improved listening comprehension skills, including the ability to understand native-level speech, various accents, and complex linguistic structures. utilizing appropriate verbal and nonverbal communication techniques.	3	
CO3	Engage in practicing and making inferences, drawing conclusions, and interpreting implicit meaning from challenging texts, fostering deeper comprehension and engagement with the material.	3	
CO4	Demonstrate adaptability in their writing, tailoring their language, tone, and style to suit the needs and expectations of specific audiences and rhetorical situations.	3	PO10, PSO1, PSO2

#### Syllabus

Module 1	<p>A. Talk about learning a second language (adverbs and adverbial language learning noun forms, word stress and noun forms with – <i>tion</i> and <i>-ity</i>)</p> <p>B. Describe extreme sensory experiences (Comparison, multi-word verbs,</p> <p>C. Talk about crime and punishment (relative clauses)</p> <p>D. Talk about using instinct and reason (noun phrases); Express yourself in an inexact way.</p> <p>E. Describe photos and hobbies (simple and continuous verbs and adjectives)</p> <p>F. Idioms: body parts, movement, landscapes, crime and feelings</p>
Module 2	<p>A. Talk about plans, intentions, and arrangements (intentions and arrangements, verbs of movement); Give advice (advising a friend about a problem)</p> <p>B. Emphasis positive and negative experiences by describing journeys and landscapes; architecture and buildings (future in the past, narrative tenses, ellipsis, and substitutions)</p> <p>C. Listen to Job Profiles. Talk about job requirements and fair pay (obligation, necessity, and permission)</p> <p>D. Listen to/Tell a descriptive narrative – a personal story (participle clauses)</p> <p>E. Emphasis opinions about the digital age- explain how you would overcome a hypothetical problem.</p> <p>F. Describe sleeping habits, routines, lifestyles and life expectancy (gerunds, infinitives and conditionals)</p>



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Module 3	A. Paraphrasing and summarizing B. Read and talk about memories and remembering (structures with have and get) C. Speculate about inventions and technology (compound adjectives) D. City life and urban space (reflexive and reciprocal pronouns, verbs with re-) E. Superstitions and rituals (passive reporting verbs) F. Read a review, report, and recommendation of a committee.
Module 4	A. Write a web forum post (expressing opinions) B. Write a report and travel review. C. Write a profile article (read an Interview of a celebrity and write an article) D. Write an essay: opinion essay and discussion essay. E. Write an application e-mail. F. Write promotional material using persuasive language.

### Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Empower 3rd Edition	Andrian Doff, Craig Thaine, Herbert Puchta, Jeff Stranks, Peter Lewis-Jones	Cambridge	2022
2	The Cambridge Guide to English Usage	Pam Peters	Cambridge	2020
3	Academic English	Letty Chan	Hong Kong : Hong Kong University Press ; London : Eurospan distributor	2021



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