



SCHOOL OF ARCHITECTURE

HANDBOOK

B. ARCH

2023-24

1. Vision and Mission

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.

PROGRAMS OFFERED IN KL

UG ENGINEERING

S.NO	NAME OF THE PROGRAM	DURATION (Years)
1	B.Tech in Artificial Intelligence & Data Science (AI & DS)	4
2	B.Tech in BioTechnology (BT)	4
3	B.Tech in Computer Science & Engineering (CSE)	4
4	B.Tech in Computer Science and Information Technology (CS & IT)	4
5	B.Tech in Civil Engineering (CE)	4
6	B.Tech in Electronics and Communication Engineering (ECE)	4

7	B.Tech in Electrical and Electronics Engineering (EEE)	4
8	B.Tech in Internet of Things (IOT)	4
9	B.Tech in Mechanical Engineering (ME)	4

UG MANAGEMENT, HUMANITIES AND SCIENCES

S.NO	NAME OF THE PROGRAM	DURATION (Years)
1	BACHELOR OF ARCHITECTURE	5
2	BACHELOR OF COMPUTER APPLICATIONS	3
3	BACHELOR OF PHARMACY	4
4	BACHELOR SCIENCES IN (ANIMATION AND GAMING, FOOD TECHNOLOGY, VISUAL COMMUNICATION)	3
5	BACHELOR OF COMMERCE (Hons),(GLOBAL FINANCE), ACCA/CMA/EA	3
6	BACHELOR OF BUSINESS ADMINISTRATION (MARKETING/FINANCE/HR/DIGITAL MARKETING/ BUSINESS ANALYTICS/GLOBAL FINANCE/ CMA/ACCA/FINTECH/LSCM	3
7	BACHELOR OF BUSINESS ADMINISTRATION AND -BACHELOR OF LAW(BBA-LLB)	5
8	BACHELOR OF ARTS WITH IAS ORIENTATION BACHELOR OF SCIENCES(HONS) AGRICULTURE	3
9	BACHELOR OF SCIENCES(HONS) AGRICULTURE	4
10	DOCTOR OF PHARMACY	6

PG ENGINEERING

S.NO	NAME OF THE PROGRAM	DURATION (Years)
1	M.TECH - BIOTECHNOLOGY	2

2	M.TECH - STRUCTURAL ENGINEERING	2
3	M.TECH - CONSTRUCTION TECHNOLOGY & MANAGEMENT	2
4	M.TECH - COMPUTER SCIENCE AND ENGINEERING	2
5	M.TECH - VLSI	2
6	M.TECH - RADAR & COMMUNICATION	2
7	M.TECH - EMBEDDED SYSTEMS	2
8	M.TECH - THERMAL ENGINEERING	2
9	M.TECH - MACHINE DESIGN	2
10	M.TECH - ROBOTICS AND AUTOMATION	2
11	M.TECH POWER ELECTRONICS AND POWER SYSTEMS	2
12	M.TECH ELECTRICAL AND ELECTRONICS ENGINEERING	2
13	M.TECH MECHANICAL ENGINEERING	2

PG MANAGEMENT, HUMANITIES AND SCIENCES

S.NO	NAME OF THE PROGRAM	DURATION (Years)
1	M.SC. (COMPUTATIONAL MATHEMATICS)	2
2	M.SC. (NANO SCIENCE & TECHNOLOGY)	2
3	M.SC. (CHEMISTRY)	2
4	M.SC. (FINANCE & CONTROL)	2
5	M.A. (DIGITAL HUMANITIES)	2
6	MASTER OF BUSINESS ADMINISTRATION	2
7	MASTER OF COMPUTER APPLICATIONS	2
8	MASTER OF PHARMACY	2

2. 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 Outcome (POs)

The B. Arch program in KL University is designed to meet the Program Outcomes as identified by Council of Architecture (COA). These constitute a superset of program outcomes identified by the National Board of Accreditation.

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
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 Outcome (PSOs) for B. Architecture

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 PEOS with Mission statement

Sl.No	Description of PEOs	Key Components of Mission		
		M 1	M 2	M 3
		Impart quality higher education and research, taking into consideration the local and national scenario of architecture profession.	To make the students well equipped to face the challenges of the present and future trends in the architectural field.	Enabling the students to be globally competitive and socially responsible architects with intrinsic values.
PEO 1	To stimulate student's artistic sensitivity and creativity	✓		
PEO 2	To strengthen student's capabilities to be able to respond to complex social habitat needs locally and globally.		✓	✓
PEO 3	To be able to comprehend the complex urban architectural needs.		✓	✓
PEO 4	To build entrepreneurial abilities to create employment and self-sustainability.	✓		

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	
4	1	22AR1151	Art and Visual Graphic Studio	CO1	To Understand the Principles of Drawing.													
4	1	22AR1151	Art and Visual Graphic Studio	CO2	To Understand the Types, Properties and Application of Colors.	2									2			
				CO3	To Understand the Painting Variations.	2							2					
				CO4	To Understand the Techniques of Sculpturing.	2							2					
				CO5	To explore and apply the Techniques of Sculpturing	4							4	4				
5	1	22AR1152	Architectural Drawing - I (Basic Geometry)	CO1	To Understand the Fundamentals of Drawing and Drafting	2		2								2		
				CO2	To Understand the Construction and Development of Surfaces for various Basic 3D Shapes.	2			2									
				CO3	To Understand the representation of various building components and related elements			2	2						2			
				CO4	To Understand the representation of a building in plan, elevation & sections.			2	2							2		
6	1	22AR1153	Architectural Design Studio – 1 (Basic Design)	CO1	An understanding of the qualities of different elements as well as their composite fusions	2		2									2	
				CO2	An ability to engage and combine the elements of design inspontaneous as well as intentional ways to create desired. qualities and effects	2				2							2	
				CO3	Development of required skills – observation / analysis / abstractions / interpretation / representations / expressions through models and drawings.			2		2								2
				CO4	Understanding of 3D Composition by involving students in several exercises which will help generation of a form from a two dimensional / abstract idea.			2		2								
7	1	22UC1101	Integrated Professional	CO1	Understanding the language Mechanics in Basic Grammar & Interactive Listening & Speaking									2	2	2		

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
					get knowledge on the metaphysical plan of Temple Architecture.												
				CO3	To 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	To Study and to know the character and Architecture of temples of South India and North India in detail.			2		2				2			2
11	2	23AR12 06	Building Materials - II (cement, R.C.C, and Glass)	CO1	Understanding the building materials -Ferrous &Nonferrous metals	2											
				CO2	Understanding of the building materials – Cement mortar and concrete & Reinforced cement concrete.	2											
				CO3	Understanding of the building material - Glass.	2											
				CO4	Understanding of the building material - Paints.	2											
12	2	22AR12 54	Model Making Workshop	CO1	To understand cutting and sticking for making a model							2					
				CO2	To understand representing hills, Plateau, water bodies, furniture's, Cars						2	2					
				CO3	To understand components of a detailed model						2	2					
				CO4	To know different materials and apply the acquired knowledge						2						
				CO5	To create a model Independently by choosing appropriate material and techniques.						6						
13	2	22AR12 56	Architectu ral Drawing - II (3D	CO1	To Understand the concepts and Scientific Methods of Perspective Drawing and apply Rendering Techniques							2	2				
				CO2	To understand the principles of Shade & Shadow and Construct								2			2	

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	
				CO3	Understanding air movement for designing buildings accordingly.				2	2								2
				CO4	Understanding climate responsive architecture through case studies.	2				2								2
20	3	22AR21 35	Surveying and Levelling	CO1	Understanding Surveying using Chain and Compass.	2							2				2	
				CO2	Understanding Surveying using Dumpy Level and Theodolite.	2							2				2	
				CO3	Understanding Surveying using Total Station and Alidade.	2							2				2	
				CO4	Applying survey practices in field	3											3	
21	3	23AR21 57	Computer Studio - I (MS office, AutoCAD 3D)	CO1	To understand the basics of computer system and their supporting technologies like MS Office.	2	2											
				CO2	To create documentation reports, analysis reports, and audio visual presentations.	2	2											
				CO3	To reciprocate the tools of 2D visualization to create architectural drawings.	2	2											
				CO4	To create layouts, plot/print to scale drawings, design and edit 2D graphic images.	5												
22	3	23AR21 58	Building Constructi on - I (Masonry)	CO1	to understand natural materials like stone used in the building construction, method of construction and its application & usage in building industry & types of masonry, it's systems & techniques.						2							
				CO2	To understand the brick as basic building material & application of clay products in construction sector, methods & techniques.						2							
				CO3	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						4							

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2	
40	5	23AR31 65	Computer Studio - III (Building Informati on Modelling)	CO1	To understand interface, workspace, and utilization of tools of 3D modeling software applies the required tools and components in building a 3D model.	2	2										2	
				CO2	To create documentation reports, analysis reports, and audiovisual presentations.	2	2											2
				CO3	To understand, visualize the space and apply the tools of BIM software, identify the need of tools of BIM software.	2	2											2
				CO4	To create a detailed 3D model by working in collaboration by application of advanced tools	2	2											2
		22AR31 17A	PE-2 (Vernacul ar Architectu re)	CO1	To understand the Vernacular Architecture, its Approaches & Concepts.	2			2									
				CO2	To Understand the Vernacular styles of Buildings in Western, Northern & North-Eastern India.					2								
				CO3	To Understand the Vernacular Architectural Styles of Southern India.					2								
				CO4	To study and Understand the Influence of Western world on Vernacular Architecture.					2								
		22AR31 17B	PE-2 (Sustaina ble Architectu re)	CO1	Fundamentals of Sustainability and its impact on Environment							1	1					
				CO2	Understanding the new concepts and terminologies of sustainability						2		2	2				
				CO3	Understand the importance of site planning and energy, water efficient landscaping as an important tool in sustainable architecture							3	3					

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
				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			
				CO4	Understand the interrelationship between Human Settlements structure and Social Dynamics.				2					2			
46	6	22AR32 22A	PE-3 (Landscape Design Studio)	CO1	Develop an understanding about space design at local level						2	2	2				
				CO2	Develop a skill to integrate various knowledge systems to arrive at a design proposal of an urban scale, the process used for the same						3	3		3			
				CO3	Make the students understand the area, scale, design and implementation factors with the involvement of stakeholders							4	4				
				CO4	Make the students work on relatively large project for incorporating multidisciplinary domains in the projects for consideration of the same.				4			4	4	4			
		22AR32 22B	PE-3 (Modular Construction Studio)	CO1	Develop an understanding about space design at local level						2		2				
				CO2	Develop integrate various knowledge systems to arrive at a design proposal of a practical scale, the process used for the same						2	2		2			
				CO3	Make the students understand the area, scale, design, and implementation factors with the involvement of Modular construction							2	2		2		
				CO4	Make the students work on a project for incorporating Modular construction				2			2		2			
47	6	22AR32 47	Architectural Design Studio -VI	CO1	Expose the students to the challenges of designing functionally complicated buildings, having a		2		2						2	2	

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
					complex array of activities and services												
				CO2	Design a functionally complex Building (Medium Rise Structure) - PROJECT 1		3									3	
				CO3	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
				CO4	Make students understand advanced construction technology and newer building materials. To Design a functionally complex Building (High Rise Structure) - PROJECT 2		3		3					3	3		3
48	6	23AR32 25A	PE-4 (Appropriate Construction Technologies)	CO1	Familiarity with the alternative building materials, applying cost effective materials and techniques to resolve environmental problems.		2	2									
				CO2	Familiarity with indigenous construction materials and techniques for building resilience and disaster mitigation		2	2									
				CO3	Familiarity with the material and techniques for energy efficient building construction		2	2									
				CO4	Introduction to Building Information Modelling and application of the same in modern construction industry						3						
		23AR32 25B	PE-4 (Energy Efficient Building)	CO1	To understand the importance of energy efficiency in buildings and strategies involved.	2			2								
				CO2	To understand the importance of relevance of water in built environment						2						
				CO3	Introduction to green rating systems and building codes			2						2			

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
					in the construction of High-rise buildings												
				CO4	Introduction to advanced building materials and their application in the contemporary architectural practice		2										
	7	23AR41 27B	PE-5 (Architecture Photography)	CO1	Familiarity with the photographic knowledge and equipment										1	1	
				CO2	Familiarity with photojournalism and visual communication techniques										2	2	
				CO3	Application of photographic equipment and techniques										2	2	
				CO4	Creating visuals for buildings of architectural importance										2	2	
52	7	23AR41 28A	PE-6 (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								
	7	23AR41 28B	PE-6 (Intelligent Buildings)	CO1	Understand intelligent buildings' concept and its evolution							2					
				CO2	Understand energy management systems and indoor environment quality of buildings							2					
				CO3	Understand energy conservation technology in buildings and its application			3				3					
				CO4	Understand and apply building management systems			3				3					

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
55	7	22AR4148	Working Drawing - I (Building structure, civil and masonry)	CO1	Introduce Working drawings and their significance in the construction of buildings.	2						2					
				CO2	Teach students the essential components of working drawings, notations, drawing standards,				2			2					
				CO3	Strengthen the students' knowledge about preparing working drawings for various building elements.							3		3			
				CO4	Improve the construction details knowledge.										5	5	
56	7	23AR4131	Research Methodology	PRI (PC)	2			2	2						2		
57	7	22UC0010	Universal Human Values & Professional Ethics	CO1	Understand and analyse 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		
58	8	22AR4226	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			3
				CO4	Applying Scientific Evaluation Techniques to Manage Project								4				4

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
					Durations and resources with Examples												
59	8	22AR42 28A	PE-8 (Dissertation)	CO1	Understand the importance of reasoning							2	2				
				CO2	Select the topic which may eventually culminate in the Architectural Design Thesis in the subsequent semester.			2						2			
				CO3	Select and apply the concept of reasoning to the chosen topic						3	3	3				
				CO4	Analyze the spaces, connectivity, and the standards of sustainable and service intensive building. Case study										5		
				CO5	Write a report on the research done in the topic with appropriate studies.						5	5	5				
	8	22AR42 28B	PE-8 (Thesis Seminar)	CO1	Students will explore and research topics of their interest; then organize presentations.	2		2									
				CO2	To help students improve as speakers. All enrolled students must be present at each seminar. It is expected that students will actively participate by asking questions of the speaker.						2				2		
				CO3	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.			3						3			
				CO4	Each student will give two 20-minute presentations. The student's seminar should cover a minimum of four related papers in the topic chosen.			4						4			
60	8	23AR42 33A	PE-9 (Urban Design)	CO1	Memorize Urban Design terminologies		2		2						2		2
				CO2	Understand Users and Activities in a city		2		2					2			

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
				CO3	Understand public spaces, streets & Transport		2		2					2	2		
				CO4	Understand Application of Urban Design		2		2					2			
		23AR42 33B	PE-9 (Transportation Planning)	CO1	Study the 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
61	8	22AR42 53	Urban Design Studio	CO1	Understand the role of Services at higher scale in Urban level							2		2			
				CO2	Understand and apply the integration of services into intelligent sustainable building case study			2							2		
				CO3	Create High Density Urban facility as a solution to the Urban area problems, Current issues. (Project-1)							3	3	3			
				CO4	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)							5	5	5	5		
62	8	23AR42 34A	PE-10 (Behavioral Architecture)	CO1	Identify concepts and concerns of perception. Identify and develop the sensitivity to the needs of users and clients	2			2								
				CO2	Understanding the designing and planning for urban quality							2			2		

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
				CO3	Identify and apply the macro and micro built environment and behavioral aspects			3						3			
				CO4	Analyze the relationship between built - environment and perception			3						3			
		23AR42 34B	PE-10 (Disaster Mitigation and Managem ent)	CO1	Understand the necessity for disaster management and measures that are to be followed.			2								2	
				CO2	Study the Disaster preparedness and Involving Design Considerations for buildings			2								2	
				CO3	Study the Design considerations for Disaster management and precautions.			2								2	
				CO4	Understand the Relief & Rehabilitation for Disasters			2								2	
63	8	22AR42 51	Working Drawing - II (Detailing)	CO1	Train the students to prepare detailed Working drawings for effective execution at construction site.							2	2				
				CO2	Teach students the essential components of working drawings, notations, drawing standards,			2						2			
				CO3	Preparation of integrated services drawings and detailing for various types of drawings and methods of transmittals and record keeping.						3	3	3				
				CO4	Update the latest materials knowledge with specifications											5	
64	9	22AR51 54	Practical Training / Internship	CO1	Understand the preparation of professional architectural portfolio and resume						2	2	2				
				CO2	Apply Academic architectural skills in various projects while working in office						4	4	4				
				CO3	Evaluate attributes of project, based on discussions with Chief Architect and clients.							5	5				

SN O	SE M	COURS E CODE	COURSE NAME	COs	CO Description	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PSO1	PSO2
				CO4	Site supervision during execution and coordination with the agencies involved in the construction process.						5	5	5				
65	10	22AR5228	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	
66	10	22AR5255	Architectural Thesis	CO 1	Understanding the Architectural Thesis, Writing Synopsis, Studies Related to Project.	2	2	2	2								
				CO2	Literature study in relation to literatures, Desktop Studies, Case studies.	3	3	3	3	3	3						
				CO3	Site Study, Application of Data & Information Collected regarding project topic, Preliminary Drawings production.	4	4	4	4	4	4	4		4			
				CO4	Creation of final Viable drawings & Building Services, Physical & Virtual Model and Report making.					5	5		5	5			

1. academic Flexibility and Regulation

This document supplements the KLEF rules and regulations to aid all B. ARCH students. It is required that every individual must abide by these regulations.

Note: The regulations stated in this document are subject to change or can be relaxed / modified without prior notice at the discretion of the Hon'ble Vice Chancellor.

Terminology

1. Terminology

- **Academic Council:** The Academic Council is the highest academic body of the University and is responsible for the maintenance of standards of instruction, education and examination within the University. The Academic Council is an authority as per UGC regulations and it has the right to take decisions on all academic matters including academic research.
- **Academic Year:** It is the period necessary to complete an actual course of study within a year. It comprises of two consecutive semesters i.e., Even and Odd semester.
- **Academic Pathways:** Students of all programs of study are given the opportunity to choose their career pathways viz. Employability, Innovation and Research. Each of these pathways prepares the students in a unique way, enabling them to achieve the heights of their career.
- **Acceleration:** Enables advanced learners to overload themselves to create free time to concentrate on the work aligned with their career track. Internship semester, semester abroad program or prototype semester are the options available for the students.
- **Academic Bank of Credits (ABC):** It helps the students to digitally store their academic credits from any higher education institute registered under ABC to award Certificate / Diploma / Degree / Honors based on the credits earned by the student. All the credits acquired by the students are stored digitally by registering into Academic Bank of Credits (ABC) portal. It also supports retaining the
 - credits for a shelf period and continue their program study with multiple breakovers.
- **Audited Course:** It is a course of study which has zero credits and has a "Satisfactory" or an "Unsatisfactory" grade.
- **Backlog Course:** A course is a backlog if the student has obtained a failure grade (F).
- **Betterment:** Betterment is a way that contributes towards improving the students' grade in any course(s). It can be done by either (a) re-appearing or (b) re-registering for the course.
- **Board of Studies:** Board of Studies (BOS) is an authority as defined in UGC regulations, constituted by Vice Chancellor for each of the departments separately. They are responsible for curriculum design and update in respect of all the programs offered by a department.
- **Branch of Study:** It is a branch of knowledge, an area of study or a specific program (like Civil Engineering, Mechanical Engineering, Electrical and Electronics Engineering etc.,)
- **Certificate course:** It is a course that makes a student gain hands-on expertise and skills required for holistic development. It is a mandatory, non-credited course for the award of a degree.
- **Change of Branch:** Change of branch means transfer from one's branch of study to another.
- **Compulsory course:** Course required to be undertaken for the award of the degree as per the program.
- **Course:** A course is a subject offered by the University for learning in a particular semester.
- **Course Handout:** Course Handout is a document which gives a complete plan of the course. It contains the details of the course viz. Course title, Course code, Pre-requisite, Credit structure, team

of instructors, Course objectives, Course rationale, Course Outcomes and the relevant syllabus, textbook(s) and reference books, Course delivery plan and session plan, evaluation method, chamber consultation hour, course notices and other course related aspects. In essence, course handout is an agreement between students (learners) and the instructor.

- **Course Outcomes:** The essential skills that need to be acquired by every student through a course.
- **Credit:** A credit is a unit that gives weight to the value, level or time requirements of an academic course. The number of 'Contact Hours' in a week of a particular course determines its credit value. One credit is equivalent to one lecture hour per week or two hours per week of tutorials/ self-learning/ practical/ field work during a semester.
- **Credit Point:** It is the product of grade points and number of credits for a course.
- **Credit Transfer:** The procedure of granting credit(s) to a student for course(s) undertaken at another institution.
- **Choice Based Credit System:** The institute adopts Choice Based Credit System (CBCS) on all the programs offered by it, which enables the students to choose their courses, teachers, and timings during their registration. This enables the students to decide on the courses to be done by them in a specific semester according to their interests in other activities.
- **Cumulative Grade Point Average (CGPA):** It is a measure of cumulative performance of a student over all the completed semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed upto two decimal places.
- **Curriculum:** Curriculum is a standards-based sequence of planned experiences where students practice and achieve proficiency in content and applied learning skills. Curriculum is the central guide for all educators as to what is essential for teaching and learning, so that every student has access to rigorous academic experiences.
- **Course Withdrawal:** Withdrawing from a Course means that a student can drop from a course within the first week of the odd or even Semester (there is no withdrawal for summer semester). However, s/he can choose a substitute course in place of it by exercising the option within 5 working days from the date of withdrawal.
- **Degree:** A student who fulfils all the Program requirements is eligible to receive a degree.
- **Degree with Specialization:** A student who fulfills all the Program requirements of her/his discipline and successfully completes a specified set of Professional elective courses in a specialized area is eligible to receive a degree with specialization.
- **Deceleration:** Students may opt for a smaller number of courses in a semester or distribute the selection of courses across regular and summer semesters to cope up with their learning pace or to take part in other activities like innovative projects, pursuing their startups or doing research work.
- **Double degree:** Students pursuing various programs in the university are given an opportunity to pursue two-degree programs in parallel. While B.ARCH . program is pursued by physically attending classes on campus, the other program can be pursued on-campus (if timetable permits) or in the online mode provided either by KL Center for Distance & Online Education or any such external providers.
- **Department:** An academic entity that conducts relevant curricular and co-curricular activities, involving both teaching and non-teaching staff and other resources.
- **Detention in a course:** Student who does not obtain minimum prescribed attendance in a course shall be detained in that course. Refer to Attendance & Detention Policy

- **Dropping from the Semester:** A student who doesn't want to register for the semester should do so in writing in a prescribed format before commencement of the semester.
- **Elective Course:** A course that can be chosen from a set of courses. An elective can be Professional Elective, Open Elective, Management Elective and Humanities Elective.
- **Evaluation:** Evaluation is the process of judging the academic work done by the student in her/his courses. It is done through a combination of continuous in-semester assessment and semester end examinations.
- **ERP:** ERP (Enterprise Resource Planning) system is a comprehensive software solution designed to streamline and automate various administrative, academic, and financial processes within the University. It manages student information, including admissions, registration, enrollment, attendance, grades, and academic records.
- **Grade:** It is an index of the performance of the students in a said course. Grades are denoted by alphabets.
- **Grade Point:** It is a numerical weight allotted to each letter grade on a 10 - point scale.
- **Honors Degree:** A student who fulfills all the Program requirements of her/his discipline and successfully completes a specified set of additional courses within the same program is eligible to receive an honors degree.
- **Humanities Elective:** A course offered in Liberal Arts.
- **Industrial Training:** Training program undergone by the student as per the academic requirement in any company/firm. It is a credited course.
- **Industrial Visit:** Visit to a company/firm as per the academic requirement.
- **In-Semester Evaluation:** Summative assessments used to evaluate student learning, acquired skills, and academic attainment during a course.
- **LMS:** LMS stands for Learning Management System. It is a platform used in the institution to manage and deliver courses. Students can access learning resources, participate in online discussions, submit assignments, take assessments, and communicate with their instructors and peers.
- **Make-up Test:** An additional test scheduled on a date other than the originally scheduled date.
- **Management elective:** A course that develops managerial skills and inculcates entrepreneurial skills.
- **Minor Degree:** A student who fulfills all the Program requirements of her/his discipline and successfully completes a specified set of courses from another discipline is eligible to receive a minor degree in that discipline.
- **Multi-Section Course:** Course taught for more than one section.
- **Open Elective:** This is a course of interdisciplinary nature. It is offered across the University for All Programs.
- **Overloading:** Registering for a greater number of credits than normally prescribed by the Program in a semester.
- **Practice School:** It is a part of the total program and takes one full semester in a professional location, where the students and the faculty get involved in finding solutions to real-world problems. A student can choose Practice School during his/her 9th semester of his/her Academic Year to meet the final requirements for the award of B.Arch degree.
- **Pre-requisite:** A course, the knowledge of which is required for registration into higher level course.
- **Professional Core:** The courses that are essential constituents of each engineering discipline are categorized as Professional Core courses for that discipline.

- **Professional Elective:** A course that is discipline centric. An appropriate choice of minimum number of such electives as specified in the program will lead to a degree with specialization.
- **Program:** A set of courses offered by the Department. A student can opt and complete the stipulated minimum credits to qualify for the award of a degree in that Program.
- **Program Outcomes:** Program outcomes are statements that describe what students are expected to know or be able to do at the end of a program of study. They are often seen as the knowledge and skills students will have obtained by the time; they have received their intended degree.
- **Program Educational Objectives:** The broad career, professional, personal goals that every student will achieve through a strategic and sequential action plan.
- **Project:** Course that a student must undergo during his/her final year which involves the student undertaking research or design, which is carefully planned to achieve a particular aim. It is a credit-based course.
- **Supplementary:** A student can reappear only in the semester end examination for the Theory component of a course, subject to the regulations contained herein.
- **Registration:** Process of enrolling into a set of courses in a semester/ term of the Program.
- **Re-Registration:** Student who are detained in courses due to attendance or marks criteria as per their regulation are given a chance to re-register for the same and complete it during the summer term.
- **Semester:** It is a period of study consisting of 16+1 weeks of academic work equivalent to normally 90 working days including examination and preparation holidays. The odd Semester starts normally in July and even semester in December.
- **Semester End Examinations:** It is an examination conducted at the end of a course of study.
- **Single Section Course:** Course taught for a single section.
- **Social Service:** An activity designed to promote social awareness and generate well-being; to improve the life and living conditions of the society.
- **Student Outcomes:** The essential skill sets that need to be acquired by every student during her/his program of study. These skill sets are in the areas of employability, entrepreneurial, social and behavioral.
- **Substitution of Elective course:** Replacing an elective course with another elective course as opted by the student.
- **Summer term:** The term during which courses are offered from May to July. Summer term is not a student's right and will be offered at the discretion of the University.
- **Term Paper:** A 'term paper' is a research report written by students that evolves their course-based knowledge, accounting for a grade. Term paper is a written original research work discussing a topic in detail. It is a credit-based course.
- **Underloading:** Registering for lesser number of credits than normally prescribed for a semester in that Program.

Withdraw from a Course: Withdrawing from a Course means that a student can drop from a course within the first two weeks of the odd or even Semester (deadlines are different for summer sessions). However, s/he can choose a substitute course in place of it by exercising the option within 5 working days from the date of withdrawal.

2. Eligibility Criteria for Admission into B. Arch. Programs

No candidate shall be admitted to architecture course unless she/ he has passed an examination at the end of the

10+2 scheme of examination in Physics, Chemistry & Mathematics and at least 50% marks in aggregate of the 10+2 level examination or passed 10+3 Diploma Examination with Mathematics as compulsory subject with at least 50% marks in aggregate.

Candidates must also have a valid NATA (National Aptitude Test in Architecture) score conducted by Council of Architecture (COA) or JEE Mains Paper II score.

3. B.Arch. Program Curriculum

For an academic program the curriculum is the basic framework that will stipulate the credits, category, course code, course title, course delivery (Lectures / Tutorials / Practice / Skill/ Project/ Self Study / Capstone Design etc.), in the Choice Based Credit System. However, all such are essentially designed, implemented, and assessed in Outcome Based Education Framework.

3.1 Program Structure

- a. B.ARCH. program is spread over a span of 10 semesters.
- b. Each semester is of, approximately 16+1 -week duration and each semester are classified as:
- c. Odd Semester (July –December)
- d. Even Semester (December – May).
- e. KLEF may offer a summer term between May and June.
- f. All courses are offered under three categories vis-à-vis. even, odd, and dual semester courses.
- g. Students have the flexibility to choose courses of their own choice prescribed by the KLEF.
- h. A student must undergo practical training in the 9th semester for 16 weeks.
- i. Model distribution of credits in B. ARCH Program

SI No	Course Category	Minimum Credits
1	Humanities & Social Sciences	10
2	Building Science and Applied Engineering	57
3	Professional Ability Enhancement Compulsory Courses	36
4	Professional Core	45
5	Professional Electives	31
6	Project Courses	98
7	Open Electives	6
8	Skill Enhancement courses	16
Total		299

3.2 Course Structure

- a. Every course has a Lecture-Studio-Practice-Skill (L-T-P-S) component attached to it.
- b. Based upon the L-T-P-S structure the credits are allotted to a course using the following criteria:
 - Every Lecture hour is equivalent to one credit.
 - Every Studio hour is equivalent to one and half credits.
 - Every Practice hour is equivalent to half credit.
 - Every skill-based practice hour is equivalent to a quarter credit.
 - If the calculated value of credit is a fraction, it is rounded to the lower number.

3.3 Course Classification

Any course offered under B.ARCH. program is classified as:

- a. Compulsory Courses
 - Building Sciences
 - Applied Engineering
 - Humanities and Social sciences
 - Professional core
 - Skilling core
- b. Elective Courses
 - Professional Elective
 - Open Elective
 - Humanities and social science elective
 - Science Elective
- c. Audit Courses
 - Indian Constitution
- d. Skill Enhancement Courses
 - Communication Skills
 - Computer Studio
 - Building Information Modeling
 - Digital Graphics and Art
 - Foreign Language

3.4 Course Precedence

The following are the guidelines for registering into courses with pre-requisites.

- a. Every course can have one or more of its preceding courses(s) as pre-requisite(s).
- b. To register for a course, the student must successfully be promoted in the course(s) earmarked as pre-requisite(s) for that course.

3.5 Summer Term Courses

KLEF offers summer term courses during May and June. The following are the guidelines to register into courses offered in the Summer Semester.

- a. A student may register for courses/s in each summer term by paying the stipulated fee. Students registering for more than one (1) summer course must ensure that there is no clash in the timetable.
- b. A student can register into a detained course or a not-registered course (course offered in regular semester, but student failed to register due to the non-compliance of pre-requisite condition but has paid the fee.) A student can also register for other than the above two mentioned categories of courses only if they are permitted for acceleration.
- c. In any case, a student can register only for a maximum of 18 credits during summer term.
- d. Attendance & Promotion policy for summer term is same as compared to the regular semester except for condonation policy. Condonation is not applicable for summer term courses.

3.6 Practice School

The Practice School (PS) program forms an important component of education at K L E F. It is an attempt to bridge the gap between an academic institution and industry. The Program, which would be a simulation of real work environment, requires the students to undergo the rigor of professional environment, both in form and in substance. In the process, it provides an opportunity for the students to satisfy their inquisitiveness about the corporate world provides exposure to practicing professional skills and helps them acquire social skills by being in constant interaction with the professionals of an organization. During Practice School, some of the students may be offered stipend and/or job offer as per the discretion of the concerned industry.

3.6.1 Practice School Duration

Practice School is usually offered for a period of one semester (16 Weeks).

3.6.2 Eligibility

The students should complete all the studio subjects from 1st – 4th year before registering into 9th semester.

3.6.3 Guidelines

The following guidelines are followed when attending Practice-School.

Practice School program carries 20 credits for a semester. Therefore, it involves substantial effort and requires seriousness, commitment, and dedication from the students. One has to hard work for good experience and better placement opportunities.

Students must abide by the rules and regulations of the company and the University.

Practice School is mandatory for the students and experience enhances the opportunities for placement.

The students, who were not selected by the companies on the campus, will be allotted a company by the Director, Practice School. Allotment of company is done based on the CGPA of the students and the availability of vacancies in the companies of their relevant branch of engineering.

Students who have submitted the Registration-cum-Data Form will not guarantee the Practice School. The number of students sent to the practice school purely depends on the number of permissions obtained in various companies for different branches of engineering.

At the time of allotment of companies, the students should be ready to opt for companies in any location (Hyderabad, Bengaluru, Vizag, Chennai, and Vijayawada) depending on the availability of the vacancies in their respective branches. Once the students are selected by a company or allotted to a company shall not be allowed either to change the company or to cancel from the practice school

4. Requirements for the award of Degree:

B. Arch Degree Requirements

For the award of B.Arch. degree, a student must successfully:

- a. Earn a minimum of 299 credits, as stipulated in the curriculum of the respective program.
- b. Complete all the mandatory courses (University Core, College Core and Departmental Core) as prescribed in the curriculum of the respective department.
- c. Acquire a minimum of 31 credits through Professional Elective Courses.
- d. Acquire 9 credits through open elective courses.
- e. Complete one management elective and one foreign language elective.
- f. Acquire a minimum of 98 credits through term-paper/project/ practice school/ internship.
- g. Have participated in social service activities for a minimum duration of 40 hours.
- h. Have obtained a minimum CGPA of 5.25 at the end of the program.
- i. The Architecture Program shall be completed in a maximum period of 8 years which includes deceleration period chosen by the student, deceleration imposed by KLEF.

5. Award of Degree

A student having cleared all the courses and met all the requirements for the award of degree with

- a. $5.25 \leq \text{CGPA} < 5.75$ will be awarded Pass class
- b. $5.75 \leq \text{CGPA} < 6.75$ will be awarded Second class
- c. $6.75 \leq \text{CGPA} < 7.75$ will be awarded First class
- d. $\text{CGPA} \geq 7.75$ will be awarded First class with Distinction provided the student has cleared all the courses in the first attempt and must have fulfilled all the program requirements in five (5) years duration.

6. Attendance Rules & Detention Policy

6.1 Attendance policy for promotion in a course:

The student must maintain minimum 85% of attendance to be promoted in a course and to appear for Sem End Examination. In case of medical exigencies, the student/parent should inform the principal within a week by submitting necessary proofs and in such cases the attendance can be condoned up to an extent of 10% by Principal on the recommendation of the committee established for condonation.

- Attendance on a course shall be counted from the date of commencement of the classwork only and not from the date of his/her registration.
- Attendance for the students who are transferred from other institutes and for new admissions, attendance must be considered from the date of his/her admission.
- In case of attendance falling marginally below 75% due to severe medical reasons or any other valid reasons, the Principal / Program chair may bring such cases, along with valid and adequate evidence to the notice of the Dean Academics. The condonation board formed by Vice-Chancellor under the chairmanship of Dean-Academics will consider any further relaxation in attendance from the minimum attendance percentage requirement condition after going through case by case.

6.2 Attendance based Marks: There are no specific marks attached to attendance as such, however, if the Course Coordinator of a course desires to award certain marks, for attendance in a course, She/he can do so based on following guidelines, which thereby must be clearly reflected in the respective course handouts which should duly be approved by the Dean Academics. For any course, not more than 5% marks can be allotted for attendance.

The distribution of marks for attendance is [85,88] =1 mark, [89,91] =2marks, [92,94] =3marks, [95,97]=4marks and [98,100]=5marks, below 85%, even in case of condonation,"0" marks. The marks, if allotted for attendance will have to be considered for all L-T-P-S components of a course cumulatively but not specifically for theory component for any course.

6.3 Attendance Waiver: Students maintaining a CGPA ≥ 9.00 and SGPA ≥ 9.00 in the latest completed semester get a waiver for attendance in the following semester. Students who thus utilize an attendance waiver will be awarded the marks allocated for attendance (if any) based on their performance in an advanced assignment specified by the course coordinator (emerging topics related to the course). S/he can appear in all assessments and evaluation components without being marked ineligible due to attendance-based regulations.

6.4 Attendance Condonation for Participation in KLEF / National / International Events: Only those students nominated / sponsored by the KLEF to represent in various forums like seminars / conferences / workshops / competitions or taking part in co-curricular / extra-curricular events will be given compensatory attendance provided the student applies in writing for such a leave in advance and obtain sanction from the Principal basing on the recommendations of the Head of the Department (HoD) for academic related requests; or from the Dean Student Affairs for extracurricular related requests. For participation in the KLEF's placement process the names of students will be forwarded by the placement cell in-charge to the respective Heads of the Departments. Students participating in KLEF/National/International events like technical fests, workshops, conferences etc., will be condoned for 10% of total classes conducted for each course in the semester. This condonation is not applicable for summer term.

6.5 Course Based Detention Policy:

In any course, a student must maintain a minimum attendance as per the **attendance policy for promotion in a course**, to be eligible for appearing in the Sem-End examination. Failing to fulfill this

condition, will deem such student to be detained in that course and become ineligible to take semester end exam.

6.6 Eligibility for appearing Sem – End Examination:

A Student registered for a course and maintained minimum attendance of 85% is eligible to write the Semester-End Examination for that course unless found ineligible due to one or more of the following reasons:

- Shortfall of attendance
- Detained
- Acts of indiscipline
- Withdrawal from a course

7. Assessment & Evaluation Process

The assessment is conducted in formative and summative modes with a weightage of 50% for Semester-In evaluation and 50% for Semester-End Evaluation.

The distribution of weightage for various components of formative and summative modes are decided and notified by the course coordinator through the course handout after approval by the Dean Academics, prior to the beginning of the semester. Students are advised to refer the course handout to get more detailed information on assessment.

- Sem-In tests and the Semester-End Examinations will be conducted as per the Academic Calendar.
- Students may have to take more than one examination in a day during Sem-In exams, Semester-End Examinations /Supplementary examinations.
- Examinations may be conducted on consecutive days, beyond working hours and during holidays.

7.1 Semester-In Evaluation

The following are the guidelines for the Semester-In evaluation.

- The process of evaluation is continuous throughout the semester.
- The distribution of marks for Semester-In evaluation is 50% of aggregate marks of the courses.
- To maintain transparency in evaluation, answer scripts are shown to the students for verification, within one week of conduct of exam. If there is any discrepancy in evaluation, the student can request the course-coordinator to re-evaluate.
- The solution key and scheme of evaluation for all examinations are displayed by the Course-Coordinator in the appropriate web portal of the course, on the day of the conduct of examination.

- In case the student is unable to appear for any evaluation component owing to hospitalization, participation in extra/ co-curricular activities representing KLEF/ state/ country; the Dean Academics can permit to conduct of re- examination for such students.
- In case a student has missed any of the two in-semester evaluations, S/he is eligible for and will be provided with an opportunity of appearing for re- examination.

7.2 Semester End Examination

- The distribution of marks for Semester-End evaluation is 50% of aggregate marks of the course.
- The pattern and duration of Sem End examination are decided and notified by the Course Coordinator through the Course handout, after approval from the Dean Academics.
- To maintain transparency in evaluation, answer scripts are shown to the students for verification. If there is any discrepancy in evaluation, the student can request the Controller of Examinations to re-evaluate.
- If a student earns 'F' grade in any of the courses of a semester, an instant supplementary exam (for only Semester End Exam component) will be provided within a fortnight of the declaration of the results.

7.3 Assessment of Project/Research-Based Subjects

All project or research-based subjects must have a defined time limit for completion. The specific time limits and schedule for monitoring and evaluating student performance will be announced each term. The final project report, after obtaining a plagiarism certificate, will be considered, and evaluated by the panel of examiners. Student project reports must follow the guidelines prescribed by the Dean of Academics.

7.4 Absence in Assessment & Examination

If a student fails to take any formative assessment component (due to ill-health or any valid reason), no second chance will be given, and zero marks will be awarded for the same. In cases of excused absence, the instructor may provide an opportunity to the student to reappear in quizzes or assignments or any other internal assessment criteria based on the approval from the principal & the concerned Head of the Department in written. If a student fails to write Sem-In Exam-I or obtained less than 50% marks in Sem-In Exam-I, he must attend remedial classes and maintain a minimum 85% of attendance in remedial classes to be eligible for Make-up test for Sem-In exam-I. Further, the number of remedial classes to be conducted shall be 50% of regular classes held till the Sem-In exam-I. However, there is no make-up test for Sem-In Exam-II or for the Laboratory exams.

A student's absence for Sem-In exams under the following circumstances are only considered for makeup test.

- Pre-approved participation in University/State/National/International co- curricular and extra-curricular activities

- Ill health and medical emergencies for the student leading to hospitalization with certification by the doctor stating inability of student to attend Sem-In exams clearly within the necessary dates.
- Death of immediate family member

7.5 Remedial Classes & Remedial Exam

The following categories of students are recommended to attend Remedial classes:

- Students who did not attend or obtain a minimum of 50% marks in the Sem-In examination-1.
- Students for whom the learning objectives of CO1/CO2 are not attained in the Sem-In examination-1.
- Any other student may also be permitted to attend remedial classes as per the discretion of the principal.

The following are the guidelines to conduct remedial classes:

- Remedial classes are scheduled to be conducted usually one- or two- weeks after the conclusion of Sem-In exam-1.
- The number of remedial classes to be conducted shall be 50% of regular classes held until the Sem-In exam-1.
- Remedial classes MUST NOT be scheduled during regular class work hours.

The following are the guidelines for remedial exams:

- Students attending remedial classes must maintain attendance of minimum 80% in classes conducted under remedial classes, without fail for being eligible for attending remedial exam.
- After conduction of remedial test, the Sem-in exam-1 marks will be updated by considering the weightage of 75% of marks obtained by student in remedial exam, and 25 % of marks obtained by student in regular exam; with a CAP of 75% in overall marks.

7.6 Grading Process

At the end of all evaluation components based on the performance of the student, each student is awarded grade based on absolute/relative grading system. Relative grading is only applicable to a section of a course in which the number of registered students is greater than or equal to 25. Choice of grading system is decided by the Course-Coordinator with due approval of Dean Academics and is specified in the course handout.

7.6.1 Absolute Grading

The list of absolute grades and its connotation are given below.

Performance	Letter Grade	Grade Point	Percentage of marks
Outstanding	O	10	90-100
Excellent	A+	9	80-89

Very Good	A	8	70-79
Good	B+	7	60-69
Above Average	B	6	55-59
Average	C	5	51-55
Pass	P	4	50
Fail	F	0	0-49
Absent	AB	0	Absent

7.6.2 Relative Grading

The following table lists the grades and its connotation for relative grading:

Letter Grade	Grade Point	Grade Calculation
O	10	total marks $\geq 90\%$ and total marks $\geq \text{mean} + 1.50\sigma$
A+	9	$\mu + 0.50\sigma \leq \text{total marks} < \mu + 1.50\sigma$
A	8	$\mu \leq \text{total marks} < \mu + 0.50\sigma$
B+	7	$\mu - 0.50\sigma \leq \text{total marks} < \mu$
B	6	$\mu - 1.00\sigma \leq \text{total marks} < \mu - 0.50\sigma$
C	5	$\mu - 1.25\sigma \leq \text{total marks} < \mu - 1.00\sigma$
P	4	$\mu - 1.50\sigma \leq \text{total marks} < \mu - 1.25\sigma$ or ≥ 40
F	0	total marks $< \mu - 1.50\sigma$ or total marks ≤ 39
AB	0	Absent

μ is the mean mark of the class excluding the marks of those students who scored $\geq 90\%$ and $\leq 40\%$ after rounding the percentages to the next highest integer. σ is the standard deviation of the marks.

7.7 SGPA & CGPA

The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses and the sum of the number of credits of all the courses undergone by a student, in a semester.

Where ' C_i ' is the number of credits of the i^{th} course and ' G_i ' is the grade point scored by the student in the i^{th} course.

The CGPA is also calculated in the same manner considering all the courses undergone by a student over all the semesters of a program, where 'Si' is the SGPA of the ith semester and 'Ci' is the total number of credits in that semester.

- The SGPA and CGPA shall be rounded off to 2 decimal points and reported in the transcripts.
- CGPA can be converted to percentage of marks: $10 \times \text{CGPA} - 7.5$
- A student appearing for a course having lab integrated with theory and in case obtains less than 50% in either of lab or theory component of semester end examination, and in such case the student must reappear for the component only in which he has secured less than 50%. Till successful attainment of minimum 40% of both components, the student remains in the F grade for that course.
- Audit/Certificate courses are graded as satisfactory (S) or non-satisfactory (NS) only.
- At the end of each semester, the KLEF issues a grade sheet indicating the SGPA and CGPA of the student. However, grade sheets will not be issued to the student if he/she has any outstanding dues.

7.8 Illustration of Computation of SGPA and CGPA

7.8.1 SGPA Computation

COURSE	CREDITS	GRADE LETTER	GRADE POINT	CREDIT POINT (Credit x Grade)
Course 1	3	A	8	3 X 8 = 24
Course 2	4	B+	7	4 X 7 = 28
Course 3	3	B	6	3 X 6 = 18
Course 4	3	O	10	3 X 10 = 30
Course 5	3	C	5	3 X 5 = 15
Course 6	4	B	6	4 X 6 = 24
	20			139

Thus, $\text{SGPA} = 139/20 = 6.95$

7.8.2 CGPA Computation

Item	Semester					
	I	II	III	IV	V	VI
Credits	20	22	25	26	26	25

SGPA	6.9	7.8	5.6	6.0	6.3	8.0
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Thus,
$$CGPA = \frac{(20 \times 6.9 + 22 \times 7.8 + 25 \times 5.6 + 26 \times 6.0 + 26 \times 6.3 + 25 \times 8.0)}{(20 + 22 + 25 + 26 + 26 + 25)} = 6.73$$

7.9 Betterment

A student may reappear for semester end examination for betterment only in the theory part of the course for improving the grade, subject to the condition that, the student has passed the course, his/her CGPA is ≤ 6.75 and the grade in the respective course to be equal to or lower than "C". In the case of reappearing for a course, the best of the two grades will be considered. A Student can re-register in any course in any semester during the program for improvement of grade if the current grade in the course is lower than B+ and with due approval from Dean Academics in accordance with academic regulations. A student cannot reappear for semester end examination in courses like Industrial Training, courses with their L-T/ST-P-S Structure like O-O-X-X, Project, Practice School, and Term Paper.

8. Credit Transfer

8.1 Credit transfer between KLEF and other institution

Credit transfer from KLEF to other institutions: Student studying in KLEF can take transfer to another institution under the following conditions:

KLEF has signed MOU with the institution.

However, a student, after seeking transfer from KLEF can return to KLEF after a semester or year. Based on courses done in the other institution, equivalent credits shall be awarded to such students.

Credit transfer from another institution to KLEF: A student studying in another institution can take transfer to KLEF under the following conditions:

- i. When a student seeks transfer, equivalent credits will be assigned to the student based on the courses studied by the student.
- ii. The student, when transferred from other institutions, has to stick to the rules and regulations of KLEF.
- iii. To graduate from KLEF, a student must study at least half of the minimum duration prescribed for a program at KLEF.

8.2 Credit Transfer Through MOOCs:

Undergraduate students can get credits for MOOCs courses recommended by KLEF up to a maximum of 20% of their minimum credits required for graduation. The discretion of allocation of MOOCs courses equivalent to the courses in the curriculum lies with the office of the Dean Academics.

A student may also be permitted to obtain 20 credits through MOOCs in addition to the minimum credits required for graduation. These 20 credits can also be utilized to acquire a Minor degree or

an honors degree if the courses are pronounced equivalent to those specified for the respective degrees by the office of the Dean Academics. These additional credits through MOOCs if to be considered for CGPA/Minor/Honors degree must be approved by Dean Academics prior to enrollment in the respective MOOCs.

Students acquiring additional credits for Honors / Minor degree must adhere to the rules governing the award of the respective degree, otherwise, a student applying for registering into additional credits through MOOCs must possess a minimum CGPA of 7.5 till that semester.

9. Rustication

A student may be rusticated from the KLEF on disciplinary grounds, based on the recommendations of any empowered committee, by the Vice Chancellor.

10 Award of Medals

KLEF awards Gold and Silver medals to the top two candidates in each program after successful completion of their study. The medals are awarded based on their CGPA during the Annual Convocation with the following constraints:

- a. The grade obtained through betterment/ supplementary will not be considered for this award.
- b. S/he must have obtained first class with distinction for the award of Gold or Silver-medal.

11. Academic Bank of Credits:

ABC helps the students to digitally store their academic credits from any higher education institute registered under ABC to award Certificate/Diploma/Degree/Honors based on the credits earned by the student. All the credits acquired by the students are stored digitally by registering into Academic Bank of Credits (ABC) portal. It also supports retaining the credits for a shelf period and continuing their program study with multiple breakovers. Students may exit from their current program of study due to any unforeseen reasons or to focus on their chosen career path. In such cases, the student may break for a period (preferably not in the middle of an academic year) and may continue with the program of study at a later stage. Moreover, students must be able to complete their program by not exceeding the maximum duration of the program. If not, they may be issued with a Certificate, diploma, degree, or honors based on the credits acquired over the period for all the programs approved by UGC.

12. Academic Structure & Calendar

Academic Activities	Regular		Extension
	Odd	Even	Summer Term
Academic Registrations	04-08-2023 to 06-08-2023	29-12-2023 to 31-12-2023	25-05-2024 to 26-05-2024
Commencement of Classwork	07-08-2023.	01-01-2024.	27-05-2024
Sem-In-1 Examinations	28-09-2023 to 30-09-2023	22-02-2024 to 24-02-2024	17-06-2024 to 19-06-2024
Skill Week	02-10-2023 to 07-10-2023	26-02-2024 to 02-03-2024	NA
Lab In Examinations	16-10-2023 to 21-10-2023	11-03-2024 to 16-03-2024	27-06-2024 to 29-06-2024
Sem-In-2 Examinations	20-11-2023 to 22-11-2023	22-04-2024 to 24-04-2024	22-07-2024 to 24-07-2024
Last Instruction Day	22-11-2023.	24-04-2024.	24-07-2024.
Declaration of Detention List	23-11-2023.	25-04-2023.	25-07-2024.
Preparation Holidays	23-11-2023 to 27-12-2023	25-04-2024 to 30-04-2024	NA
Sem End Examinations	28-11-2023 to 16-12-2023	01-05-2024 to 18-05-2024	TBA
Semester Break	18-12-2023 to 31-12-2023	19-05-2024 to 06-07-2024	NA
Number of Academic Days	81	85	48
Number of Skill Days	6	6	NA
Number of Exam Days	12	12	-
Total Days	99	103	

Prof. V. Hari Kiran
Additional Dean Academics
K L E F (Deemed to be University)
Vaddeswaram-522 302, A.P.

13. Academic, Career & Psychological Counselling

13.1 Academic Counselling Board:

Academic Counseling Board is constituted by the Dean Academics. This board shall comprise of the Chairman, Convener, Principal/Director, HOD and Professor/Associate Professor. A student will be put under Academic Counseling Board in the following circumstances:

- Has a CGPA of less than 6.00.
- Has 'F' grade or 'Detained' in multiple courses.
- The first level of Counseling such students will be done by the Mentor of the student and the HoD followed by the ACB and the list of students who must undergo the ACB counseling be forwarded by the HoD to the Office of Dean Academics.

The students undergoing the Academic Counseling Board process may be allowed to register only for a few courses based on the recommendation of Academic Counseling Board.

13.2 Counselling Policy:

13.2.1 Counselling Policy

The institute ensures that the students are provided necessary mentoring support at regular intervals on various aspects viz, academics, career planning, personal/psychological. Faculty mentors allotted to the students should take care of the well-being of the students and motivate them to become successful in their chosen career category. Also, the feedback taken from the students and other stakeholders of the system at regular intervals is summarized and analyzed and necessary action is taken in time for the improvement of curriculum, teaching-learning process, outcome- based education, etc.

13.3 Academic counselling

- 13.3.1 A mentor or counselor pays personal attention to and monitors a student's academic progress. Students meet the allotted counseling faculty every fortnight and counselor record the academic issues faced by the students, if any.
- 13.3.2 The academic progress of the counselling student is tracked by the counsellor and the same is informed to the parents of counselling students every month.
- 13.3.3 Department Academic Counselling Board (DACB) submits a consolidated counselling report to Office of Dean Academics through respective department Professor In charge.

Office of Dean Academics discusses with the departments to understand the various aspects that contribute to the development of the students and the ways to address & resolve the issues faced by their students. The outcome of the meeting may be in identifying the best practices to be adopted by the mentors to effectively guide the students, training to be arranged for students and mentors, therapeutic sessions to be arranged in consultation with psychologists, teaching learning practices to be improved, etc.

13.4 Career Counselling

- 13.4.1. The skill development and student progression division play an exemplary role in the overall progress and career growth of the students.
- 13.4.2. SWEAR (Strengths, Weakness, Eligibility, Availability and Resources) analysis is done for the students at regular intervals to identify their strengths, weaknesses, interests, career category of interest (employability, research, or entrepreneurship), pre-existing knowledge, aspects to improve etc. The survey results are analyzed, and necessary insights are derived from it for the appropriate planning by the skill development and student progression division and communicated to the departments.
- 13.4.3. Necessary training programs in areas like soft skills, communication, life skills like yoga, meditation are arranged under the aegis of skill and sports division through experts from appropriate industry as trainers.

13.5. Personal / Psychological Counselling

Mentors are encouraged to guide the students on various aspects mentioned below to ensure the overall development of the students. Mentors are given necessary professional development programs to effectively guide the students on these aspects to ensure the holistic development of the students. As the students go to the mentor for regular interaction as a part of their timetable, they establish a good connection with them and be ready to listen to the mentor on the areas they should focus upon to excel well in academics.

13.6 The duties of the counsellors and counselling process

- 13.6.1. A Department Academic Counselling Board (DACB) meeting is held in the department to allocate faculty mentors for every 20 students once admitted into a program.
- 13.6.2 During the first year of study, faculty from Fresh Engineering Department (FED) are appointed as counsellors/Mentors.
- 13.6.3 The faculty allocated as a counsellor during the second year will be continued for the allotted 20 students till the student graduates.
- 13.6.4 The Mentor and the Mentee details are mapped, and counselling is carried out every fortnight of the month.
- 13.6.5 Free hours of the Counselor/Mentor timetable are shared by the Counselor to his/her allotted students through Mail, SMS, telegram/WhatsApp group chats, to meet the students and counsel them on academic/ Career / Personal related aspects.
- 13.6.6 The counsellor maintains a record of student's address, his/her parents' details, contact numbers, etc. in a counseling book and these details are updated by the Counselor.
- 13.6.7 The counselor keeps track of student's attendance to their regular classes, academic performance and maintains a record of the same in the counseling book and updates the information.
- 13.6.8 Counselor periodically communicates with parents through mail, SMS and through telephonic conversations. The communication undertaken is recorded in a counseling book and is updated.
- 13.6.9 The analysis of the counseling maintained by the counselor is submitted to the Head of the Department

for further action.

13.6.10 In case of repeated non-performance, irregular in attendance of the students, the Counselor/Mentor shall submit and report to DACB to take corrective measures.

13.6.11 Head of the department, Deputy Heads, Faculty mentor, Course coordinators, Professor In charges and Academic Year Coordinators of the department are the members of DACB.

13.7 Feedback system:

The institute seeks to review and improve the quality of its teaching and learning by analyzing the students' feedback on the courses, programs, teaching-learning process, outcome attainment, facilities, etc. Feedback is obtained from stakeholders at regular intervals covering the various aspects mentioned in an organized manner ensuring that the stakeholders are made aware of the purpose for which they give this feedback and the mechanism through which the corrective action is taken. The process on feedback from stakeholders is executed in the following two stages.

13.8 Feedback type:

The following are the feedback taken from different perspectives from the stakeholders:

13.8.1 **Student Feedback on Curriculum-** The feedback on curriculum is obtained from the stakeholders viz., Students, Parents, Alumni, Faculty, Industry and Academic peers once in a semester during the program development process.

13.8.2 **Student Academic Progress Feedback** — The academic progression feedback will be taken twice in a semester. One preliminary feedback taken four weeks after the commencement of class work and another detailed one at the end of the semester. This feedback is subject-specific, and the students are required to give this feedback for all the subjects registered in a semester. This Feedback is on the following aspects (but not limited to)

- Delivery of courses
- Effectiveness of teaching
- Pace of delivery
- Active class engagement
- Communication of the teacher
- Active learning methods adopted in the classroom, etc.

The results of this feedback are analyzed and the performance score of the faculty are reviewed for appropriate action by the departments. Departments are required to ensure that all the eligible students are giving this feedback compulsorily as it greatly helps the faculty in altering their t style appropriate to the requirement of the students.

13.8.3 Student Satisfaction Survey

Student Satisfaction Survey (SSS) is taken once in a semester from a generic perspective to understand the overall satisfaction of the students on the academic process of that semester on the following aspects (but not limited to)

- 13.8.3.1. Innovative methods adopted in that semester,
- 13.8.3.2. Availability of learning resources,
- 13.8.3.3 Effectiveness of the classroom activities,
- 13.8.3.4 Engagement of the students in the class,
- 13.8.3.5 Effectiveness of the labs conducted,
- 13.8.3.6 Syllabus of the subjects offered, etc.

13.8.4 **Student Exit Feedback**

Exit survey feedback is taken once a year from the final year students who are about to graduate in that academic year. This feedback is taken to understand the overall impression of the students who graduate from the Institute on the following aspects (but not limited to)

- 13.8.4.1 Ambience and opportunities for learning
- 13.8.4.2 Conduction of Classes
- 13.8.4.3 Conduction of Labs
- 13.8.4.4 Equipment /tools availability in Labs
- 13.8.4.5 Access to Library
- 13.8.4.6 Internet Facilities
- 13.8.4.7 quality of teaching (general)
- 13.8.4.8 discipline in campus (general)
- 13.8.4.9 Coverage of syllabus (overall)

13.8.5 **Feedback on curriculum with Academic peers, Parents, Alumni, and Industry personal-** This structured feedback is taken once in a semester for design and review of syllabus – semester wise taken from Alumni, Peers, Parent, Industry Personnel on the following aspects (but not limited to)

- 13.8.5.1 The contents of the curriculum with respect to state-of-the-art
- 13.8.5.2 contents of the course
- 13.8.5.3 curriculum provides against conducting research and project related activities.
- 13.8.5.4 curriculum is balanced regarding the theoretical and practical knowledge.
- 13.8.5.5 curriculum development procedure
- 13.8.5.6 learning outcomes of the curriculum are of global standard.
- 13.8.5.7 curriculum has focus on skill development.

13.8.6 **Faculty Satisfaction Survey** -Satisfaction Survey is taken once in a semester from the faculty on the following aspects (but not limited to)

- 13.8.6.1 Distribution of workload
- 13.8.6.2 Rationality of expectations

- 13.8.6.3 Institute support in terms of research and investment
- 13.8.6.4 Time and space for professional growth
- 13.8.6.5 Respect from peer faculties and students
- 13.8.6.6 Presence of adequate policies for comfortable teaching culture
- 13.8.6.7 Appreciation and recognition
- 13.8.6.8 Recreation and collaboration

13.8.7 Parent Teacher Association meeting –

Parent Teacher Association (PTA) meeting is conducted to get parents involved in their ward's academics and it provides parents and faculty a mutual platform to strengthen their relationship with the students through planning and conducting variety of developmental and recreational activities. In the PTA meeting the following points are to be discussed (but not limited to):

- 13.8.7.1 K L University Rankings and Awards
- 13.8.7.2 Department Highlights, awards, and achievements
- 13.8.7.3 Student Pass Percentage
- 13.8.7.4 Internships, Placements and Packages
- 13.8.7.5 Internships, Placements and Packages
- 13.8.7.6 Collaborations and MOUs
- 13.8.7.7 Design Thinking and Innovation
- 13.8.7.8 Teaching and Learning Process
- 13.8.7.9 Exams and Evaluation Process

13.8.8 Student Feedback on Career Counselling and Competitive Examination Guidance

– The feedback is taken once in a semester from the students on the following aspects.

- 13.8.8.1 Guidance for Competitive examination
- 13.8.8.2 Course modules relevant to the competitive exams
- 13.8.8.3 Quality of the instructor
- 13.8.8.4 Training content
- 13.8.8.5 Training group
- 13.8.8.6 Quality of the training for Competitive examination

14.1 Graduate Requirements:

As per Council of Architecture (Statutory authority constituted under the Architects Act, 1972) Notification New Delhi, 11th August 2020

- i) The Architecture course shall be of minimum duration of 5 academic years or 10 semesters of 15 to 18 working weeks (90 workdays) each, inclusive of six months or one semester of approximately 16 working weeks of practical training during 8th or 9th Semester, as prescribed in Appendix-A.

- ii) The Curriculum structure of the Architecture course shall follow the guidelines as outlined in Appendix-A under the Choice Based Credit System. However, the modes of periodic assessment, end semester and viva voice examinations, weightages and grading system are left to the discretion of the University or Institution.
- iii) A candidate shall not be permitted to enroll for the Architectural Design course in a semester unless he has completed the Architectural Design course of the previous semester.
- iv) A candidate shall not be permitted to enroll for the tenth semester Architectural Design Thesis or dissertation or project course unless he has successfully completed Practical Training or Internship.
- v) A candidate shall be awarded the degree in Architecture course by the University or Institution for having earned the minimum credits as specified in the curriculum.
- vi) The Architecture Course shall be completed in a maximum period of 8 years. However, in special circumstances a candidate may be granted an extra 1 year by the University or Institution to complete the course. This shall be given only once to the candidate and treated as zero year.
- vii) In case a candidate is not able to complete the course in the prescribed duration, the University or Institution may provide an exit option for the candidate if he has completed and earned all credits for the first three years of study.

Course Category Wise Credit Distribution

S No	Course Category	Short name	No of Courses	Total credits
1	Professional Core	PC	14	45
2	Professional Electives	PE	10X2	31
3	Project Courses (PC)	PRI (PC)	10	98
4	Building Science and Applied Engineering	BSAE	18	57
5	Professional Ability Enhancement Compulsory Courses	PAECC	3	36
6	Humanities & Social Sciences	HSS	5	10
7	Skill Enhancement courses	SEC	4	16
8	Open Electives	OE	2	6

Professional core

SL NO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	22AR1101	Theory of Architecture	3	0	0	0	3	3
2	22AR1102	History of Architecture - I (Ancient Civilization)	3	0	0	0	3	3
3	22AR1151	Art and Visual Graphic Studio	0	0	6	0	6	6
4	22AR1152	Architectural Drawing - I (Basic Geometry)	0	0	6	0	6	6
5	22AR1205	History of Architecture - II (Hindu Architecture)	3	0	0	0	3	3
6	22AR1254	Model Making Workshop	0	0	4	0	4	4

7	22AR1256	Architectural Drawing - II (3D forms and colour)	0	0	4	0	4	4
8	22AR2108	History of Architecture - III (Medieval periods)	3	0	0	0	3	3
9	22AR2212	Site Analysis and Planning	2	0	0	0	2	2
10	22AR2213	Contemporary Indian Architecture	2	0	0	0	2	2
11	23AR3117	Building Bye laws and Office Management	2	0	0	0	2	2
12	22AR3116	Contemporary Western Architecture	2	0	0	0	2	2
13	22AR3218	Specification, Estimation and Costing	3	0	0	0	3	3
14	23AR3223	Human Settlements and Planning	2	0	0	0	2	2
15	23AR4131	Research Methodology	2	0	0	0	2	2

Professional Electives

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	22AR3118A	PE-1(Interior Design Studio)	0	0	4	0	4	4
2	22AR3118B	PE-1 (Furniture Design Studio)						
3	22AR3117A	PE-2 (Vernacular Architecture)	3	0	0	0	3	3
4	22AR3117B	PE-2 (Sustainable Architecture)						
5	22AR3222A	PE-3 (Landscape Design Studio)	0	0	4	0	4	4
6	22AR3222B	PE-3 (Modular Construction Studio)						
7	23AR3225A	PE-4 (Appropriate Construction Technologies)	2	0	0	0	2	2
8	23AR3225B	PE-4 (Energy Efficient Building)						
9	23AR4127A	PE-5 (Advanced Building Techniques)	0	0	4	0	4	4
10	23AR4127B	PE-5 (Architecture Photography)						
11	23AR4128A	PE-6 (Housing)	2	0	0	0	2	2
12	23AR4128B	PE-6 (Intelligent Buildings)						
13	22AR4124A	PE-7 (Architectural Conservation)	3	0	0	0	3	3
14	22AR4124B	PE-7 (Set Design)						
15	22AR4228A	PE-8 (Dissertation)	0	4	0	0	4	4
16	22AR4228B	PE-8 (Thesis Seminar)						
17	23AR4233A	PE-9 (Urban Design)	2	0	0	0	2	2
18	23AR4233B	PE-9 (Transportation Planning)						
19	23AR4234A	PE-10 (Behavioral Architecture)	3	0	0	0	3	3
20	23AR4234B	PE-10 (Disaster Mitigation and Management)						

Open Electives

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	OEAG0002	Writing for Media (WFM)	0	0	6	0	6	3
2	22BB21C3	Human Resource Management	3	0	0	0	3	3

Building Science and Applied Engineering

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	23AR1103	Building Materials - I (Brick, Stone, Wood)	2	0	0	0	2	2
2	22UC0009	Ecology & Environment	2	0	0	0	2	2
3	23AR1204	Design of Structures - I (Plane trusses, shear force and bending moment)	3	0	0	0	3	3
4	23AR1206	Building Materials - II (cement, R.C.C, and Glass)	2	0	0	0	2	2
5	23AR2107	Design of Structures - II (Design of beams and columns)	3	0	0	0	3	3
6	22AR2109	Climate Responsive Architecture	3	0	0	0	3	3
7	23AR2158	Building Construction - I (Masonry)	0	4	0	0	4	4
8	23AR2211	Design of Structures - III (Design of footings)	3	0	0	0	3	3
9	22AR2211	Building Services - I (Plumbing and sanitation)	3	0	0	0	3	3
10	23AR2260	Building Construction - II (Joinery, trusses, and staircase)	0	4	0	0	4	4
11	23AR3115	Design of Structures - IV (Detailing of structural member)	3	0	0	0	3	3
12	23AR3116	Building Services - II (Electrical, and Acoustics)	3	0	0	0	3	3
13	22AR3143	Building Construction - III (Steel structures, Partitions, and false ceiling)	0	4	0	0	4	4
14	23AR3221	Building Services - III (HVAC and fire safety)	3	0	0	0	3	3
15	22AR3246	Building Construction - IV (R.C.C and special concrete)	0	4	0	0	4	4
16	23AR4126	Building Services - IV (Building automation)	3	0	0	0	3	3
17	22AR4148	Working Drawing - I (Building structure, civil and masonry)	0	0	4	0	4	4
18	22AR4251	Working Drawing - II (Detailing)	0	0	4	0	4	4

Project Courses

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	22AR1153	Architectural Design Studio – 1 (Basic Design)	0	0	9	0	9	9
2	22AR1257	Architectural Design Studio -II	0	0	9	0	9	9
3	22AR2138	Architectural Design Studio -III	0	0	9	0	9	9
4	22AR2241	Architectural Design Studio -IV	0	0	9	0	9	9
5	22AR3144	Architectural Design Studio -V	0	0	9	0	9	9
6	22AR3247	Architectural Design Studio -VI	0	0	12	0	12	12
7	22AR4150	Architectural Design Studio -VII	0	0	12	0	12	12
8	22AR4253	Urban Design Studio	0	0	12	0	12	12
9	22AR5255	Architectural Thesis	0	0	15	0	15	15

Humanities & Social Sciences

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	22UC1101	Integrated Professional English	0	0	2	0	2	2
2	22UC1202	English Proficiency	0	0	2	0	2	2
3	22UC1203	Design Thinking and Innovation	0	0	2	0	2	2
4	22UC0010	Universal Human Values & Professional Ethics	2	0	0	0	2	2
5	22UC0010	Gender and Social Equality	2	0	0	0	2	2

Skill Enhancement courses

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
1	22AR2135	Surveying and Levelling	0	0	0	4	4	4
2	23AR2157	Computer Studio - I (MS office, AutoCAD 3D)	0	0	0	4	4	4
3	23AR2262	Computer Studio - II (Image making and 3d making software)	0	0	0	4	4	4
4	23AR3165	Computer Studio - III (Building Information Modelling)	0	0	0	4	4	4

Professional Ability Enhancement Compulsory Courses

SNO	COURSE CODE	COURSE NAME	L	T	P	S	CH	CR
58	22AR4226	Building Construction and Management	3	0	0	0	3	3
64	22AR5154	Practical Training / Internship	0	0	30	0	30	30
65	22AR5228	Architecture Professional Practice	3	0	0	0	3	3



B.Arch. 23-24 curriculum

Professional Core

THEORY OF ARCHITECTURE (TOA)

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

CO#	CO Description	BTL	PO Mapping
CO1	Introduction to Architecture and basic understanding of space and form development.	2	PO2, PO4
CO2	To learn the components of building circulation and its relation to architecture.	2	PO2, PO1
CO3	An understanding on architectural aesthetics in designing a building & also understand the key role of principles applied in architecture.	2	PO2, PO4
CO4	Students should understand the functioning of design process and its application in architectural buildings through case studies.	3	PO4, PO10, PSO2

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 s 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 DuHaut by Le Corbusier

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	<i>Elements of Architectural Design – A Visual Resource</i>	Government of India, New Delhi	Van Nostrand Reinhold Company,	1999
4	<i>Design Fundamentals in Architecture</i>	V.S.Pramar	Somaiya Publications, New Delh	1973

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				
2		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		
2	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	5	5
	Attendance	5	5
	Home Assignment and Textbook	10	10
In-Sem Summative	Semester in Exam-I	12.5	12.5
	Semester in Exam-II	12.5	12.5
	Surprise Quiz (min 2)	5	5
End-Sem Summative			
	End Semester Exam	50	50

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

COURSE CODE	22AR1102	MODE	Basic	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To Understand Primitive Architecture and Ancient settlements in pre-Historic times and get knowledge on the Ancient River valley civilizations in the world.	2	PO3, PO9, PSO2
CO2	Understand the Architecture and Planning of Ancient River Valley Civilizations	2	PO3, PO4, PSO2
CO3	Understand the Culture and its influence on Architecture in Ancient Greece and Ancient Rome and its impact on Western Architecture	2	PO3, PO9, PSO2
CO4	To study the Built forms in Ancient Greece and Ancient Roman Empire and its monumental Urban Architecture	2	PO3, PO5, PO9, PSO2

Syllabus

Module 1	Prehistoric / Primitive Architecture: Introduction to Paleolithic & 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, Temples, Basilicas, Amphitheatres & Residences.
Module 4	Classical period Greece: Places of importance Athens, Agora, Acropolis, Pathenon, 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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Introduction to the History of Architecture	Udemy	-	Online	Udemy	https://www.udemy.com/course/introduction-to-the-history-of-architecture-for-children/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Nil	Nil	Nil

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	
	Attendance	5	
	Home Assignment and Textbook	5	
			20
In-Sem Summative	Semester in Exam-I	15	
	Semester in Exam-II	15	
			30
End-Sem Summative	End Semester Exam	50	50

ART AND VISUAL GRAPHICS STUDIO (AVGS)

COURSE CODE	22AR1151	MODE		LTPS	0-0-6-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To Understand the Principles of Drawing.	2	PO1, PO10
CO2	To Understand the Types, Properties and Application of Colors.	2	PO1, PO10
CO3	To Understand the Painting Variations.	2	PO1, PO10
CO4	To Understand the Techniques of Sculpturing.	2	PO1, PO10
CO5	To explore and apply the Techniques of Sculpturing	4	PO1, PO10

Syllabus

Module 1	Introduction to art – Types of drawing – Visual effects of drawing– Composition – Approach to sketching – Study of light, shade, and shadow. Exercise involving Indoor and outdoor sketching –Spot sketching- Sketching Human figures & Objects– Sketching Vegetation - Drawing from imagination – Study of 3 D effects – Tools and materials – Illustration
Module 2	Introduction of painting– Properties of colour – Colour schemes – Types of colours - Application and visual effects of colour. Exercise involving Study of colour – Properties of paper, brush, and other tools – Basic washes.
Module 3	Indoor and outdoor painting – Rendering techniques Exercise involving various mediums of colour– Pen and ink– Mixed mediums – Study of multi-colour and 3D effects from nature and built environment.
Module 4	Introduction of sculpture –Sculpture using various materials such as clay, plaster of Paris, papermâché, and wire.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	The artist drawing book	Moivahuntly	David & Charles, U.K.,	1994
2	Exploring sculpture	Arundell	Mills and Boon, London/Charles, T. Brand Ford Company, U.S. A	2004

3	The art of drawing trees, heads, colours, mixing, drawing, landscape and painting, water colour, oilcolour	Fraser Reekie, Reekie's	The Grumbacher Library Books, New York	1996
4	Pen and Ink Sketching	Caldwell peter	B.T. Bats ford Ltd., London	1995
5	Drawing and Sketching in Pencil	Arthur Leighton Guptill	Dover Publications Inc.; Dover Ed edition	2007

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		
2	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative			
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

ARCHITECTURAL DRAWING - I (A. DWG I)

COURSE CODE	22AR1152	MODE		LTPS	0-0-6-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To Understand the Fundamentals of Drawing and Drafting	2	PO1, PO3, PS02
CO2	To Understand the Construction and Development of Surfaces for various Basic 3D Shapes.	2	PO1, PO5, PS02
CO3	To Understand the representation of various building components and related elements	2	PO3, PO4, PS02
CO4	To Understand the representation of a building in plan, elevation & sections.	2	PO3, PO5, PS02
CO5	To Understand the Preparation of Simple Measure Drawing	2	PO3, PO5, PS02

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.
Module 2	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.
Module 3	Architectural Representation of components and materials/textures, measured drawing of building components and furniture – Doors, Windows, Wardrobe, Drafting table etc.,
Module 4	Measured drawing of a simple form/space.

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

Sl No	Title	Author(s)	Publisher	Year
4	Rendering with Pen and Ink	Arthur Leighton Guptill	Watson-Guptill; New edition	1997
5	Architectural Graphics	Leslie Martin	The Macmillan Company, New York	1978
6	Drawing & Perceiving	Cooper Flouglas	Van Nostrand Rein hold, New York	1995

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

HISTORY OF ARCHITECTURE - II (HOA - II)

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

CO#	CO Description	BTL	PO Mapping
CO1	To understand Vedic culture and study the origins of Early Hinduism, Jainism, Buddhism, and its rudimentary forms of construction.	2	PO1,PO3,PSO2
CO2	To understand Hindu forms of worship, concept, symbolism and to get knowledge on the metaphysical plan of Temple Architecture.	2	PO1,PO5,PSO2
CO3	To understand and to get knowledge on the temple architecture and temple towns during various periods and empires in South India and North India.	2	PO3, PO4,PSO2
CO4	To Study and to know the character and Architecture of temples of South India and North India in detail.	2	PO3, PO5, PO10, PSO2

Syllabus

Module 1	<p>Early Hindu, Jain, and Buddhist Architecture</p> <p>Origin of Early Hinduism. Vedic Culture, Vedic village& Rudimentary forms of Bamboo Structures.Origins, Thought, Art and Culture of Jainism &Buddhism. Character of Jain Architecture.</p> <p>Hinayana and Mahayana Styles of Buddhist Architecture. Evolution of Built form based on form&function. Architectural Features like Stupas Chaityas, Viharas, Stambhas, Toranas, Railings etc.</p> <p>Places of Importance: Ashokan Pillar-Sarnath, Rock Cut Caves-Barabar; Sanchi Stupa-Sanchi Rock Cut Architecture; GreatStupa at Amaravati, Ajanta& 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 socialimportance of temple.</p> <p>Classification of Indian temples - Elements of temple -Metaphysical plan of Temple ArchitectureEarly shrines of the Gupta and Chalukyan and Rashtrakuta periods.</p> <p>Places of Importance: Tigawa temple - Ladh Khan and Durga temple, Aihole - Papanatha, Virupaksha temples, Pattadakal -Kailasanatha temple, Ellora.</p>
Module 3	<p>Temple Architecture - Southern India</p> <p>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</p> <p>Temple Architecture - Northern India</p> <p>Brief history of North India and its Characteristics –Different phases of North Indian TempleArchitecture -Sub schools developed under the style.</p>

	Architectural production and salient features in Orissa, Gujarat, Madhya Pradesh and Rajasthan.
Module 4	<p>Southern India- Places of Importance 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.</p> <p>Northern India- Places of Importance Lingaraja Temple- Bhubaneswar, Sun temple- Konarak, Somnatha temple- Gujarat, Kandariya Mahadev temple- Khajuraho group, Madhya Pradesh, Dilwara temple, Mt. Abu</p>

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	Parameswaranpillai 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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	15	30
	Semester in Exam-II	15	
End-Sem Summative	End Semester Exam	50	50

MODEL MAKING WORKSHOP (MMW)

COURSE CODE	22AR1254	MODE		LTPS	0-0-4-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand cutting and sticking for making a model	2	PO7
CO2	To understand representing hills, Plateau, water bodies, furniture's, Cars	2	PO7, PO8
CO3	To understand components of a detailed model	2	PO7, PO8
CO4	To know different materials and apply the acquired knowledge	2	PO7
CO5	To create a model Independently by choosing appropriate material and techniques.	6	PO7

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.
Module 2	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.
Module 3	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 4	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
3	Model making - A Basic Guide (Norton Professional Books for Architects & Designers)	Martha Sutherland	W. W. Norton & Company, First Edition	1999
4	Architectural Model Building	Roark T. Congdon	Fairchild Books, First Edition	2010

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				
2		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		
2	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative			
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

ARCHITECTURAL DRAWING - II (A. DWG I)

COURSE CODE	22AR1256	MODE		LTPS	0-0-6-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To Understand the concepts and Scientific Methods of Perspective Drawing and apply Rendering Techniques	2	PO7, PO8
CO2	To understand the principles of Shade & Shadow and Construct Sciography of Architectural Structures.	2	PO7,PO10
CO3	To Understand identification and measuring of specific Architectural Details of Historically significant Buildings.	2	PO7,PO10
CO4	To understand the presentation techniques of drawings	2	PO1, PO7

Syllabus

Module 1	Rendering Techniques using various mediums – Dot rendering, Line rendering, Colour rendering etc.,
Module 2	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.
Module 3	Introduction to Sciography – Shade, shadow casting on horizontal and vertical surfaces – Ground, different projections/depressions in walls, Chajjas; Sciography for 3D forms.
Module 4	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 Guptill	Watson-Guptill; New edition	1997
5	Architectural Graphics	Leslie Martin	The Macmillan Company, New York	1978

6	Drawing & Perceiving	Cooper Flouglas	Van Nostrand Rein hold, New York	1995
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

HISTORY OF ARCHITECTURE- III (HOA -III)

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

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the evolution of early Christian and Medieval periods, its Architecture and socio-political changes.	2	PO1, PSO1
CO2	Renaissance and Mannerist Architectures and their practices in Europe, growth of nations and styles of Baroque and Rococo.	2	PO1, PSO1
CO3	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.	2	PO1, PSO1
CO4	Study of Architectural developments during Mughal Dynasty, Study of cross culture influence and evolution of secular architecture in princely states	2	PO1, PSO1

Syllabus

Module 1	Early Christian and Medieval Periods: 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	Renaissance, Mannerism and Post Renaissance Movements: 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	Islamic Architecture in India and Delhi Sultanate: 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: 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	Mughal Architecture: 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. CrCrosscultural influences across India and secular architecture of the princely states: Oudh, Rajput, Sikh, Vijayanagara, Mysore, Madurai- important examples.
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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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Art History Prehistory to the Renaissance	Udemy	-	Online	Udemy	https://www.udemy.com/course/art-history-survey-prehistory-to-1300/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Nil	Nil	Nil

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem	ALM	10	
Formative	Attendance	5	

	Home Assignment and Textbook	5	
			20
In-Sem Summative	Semester in Exam-I	15	
	Semester in Exam-II	15	
			30
			50
End-Sem Summative	End Semester Exam	50	50

SITE ANALYSIS AND PLANNING (SAP)

COURSE CODE	22AR2212	MODE		LTPS	2-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To make students understand about the basics of site, it's measuring and drawing methodologies.	1	PO9
CO2	To explain the importance of analysis of a site required in architectural design and building construction.	2	PO3
CO3	To make students understand the context of the site with respective to the surrounding land use typology.	2	PO3
CO4	To discuss about the site planning techniques and layout principles to be followed prior to site designing.	2	PO4

Syllabus

Module 1	Definition of plot, site, land and region, units of measurements. Introduction to survey, methods of surveying, where they are used, Surveying Instruments and their application. Need for surveying. Measuring and drawing out a site plan from the measurements. Computation of area by geometrical figures and other methods. Drawing marking out plan, layout plan and centerline plan. Exercises on the above.
Module 2	Site Analysis Importance of site analysis; Onsite and off-site factors; Analysis of natural, cultural, and aesthetic factors – topography, hydrology, soils, vegetation, climate, surface drainage, accessibility, size and shape, infrastructures available - sources of water supply and means of disposal system, visual aspects; Preparation of site analysis diagram. Study of microclimate: - vegetation, landforms, and water as modifiers of microclimate. Study of landform; - contours, slope analysis, grading process, grading criteria, functional and aesthetic considerations – Case studies and exercises.
Module 3	Site Context Context of the site. Introduction to existing master plans land use for cities, development control Rules. Preparation of maps of matrix analysis & composite analysis. Site selection criteria for housing development, commercial and institutional projects - Case studies.
Module 4	Site Planning Principles Site Design Elements, Analyzing the site and context factors categorically, Organization of elements in consideration with pedestrian and vehicular circulation, Zoning of the site, Connecting Spaces. Open vs Built, Grey vs Grey spaces, Massing and arrangement of activities, types of roads, hierarchy of roads, networks, road widths and parking, regulations. Turning radii & street intersections, Land scape and other site services. Examples of few well-planned projects.

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
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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
	NIL					

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home assignment	5	
In-Sem Summative	In Sem Examination 1	12.5	30
	In Sem Examination 2	12.5	
	Surprise quiz (2 Min)	5	
End-Sem Summative	End sem Examination	50	50

CONTEMPORARY INDIAN ARCHITECTURE (CIA)

COURSE CODE	22AR2213	MODE	Offline	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the Evolution of Dwellings as base of Traditional and Vernacular styles of India.	2	PO1, PO3
CO2	Understand the Architecture and Planning of various Cities during Medieval Age.	2	PO1, PO5
CO3	Understand the Culture and Built Forms in Pre – Independence (Colonial Rule) and Post-Independence of India.	2	PO3, PO4
CO4	Understand the Theories of current Architect practices and their applicability in meeting present day Needs.	2	PO3, PO5

Syllabus

Module 1	<p>Identified Indian Architecture</p> <p>Ancient Scriptures about Indian construction techniques. Influence of Culture, Tradition on Indian Architecture. Vernacular architecture of Various Zones of identified India, Climatic factors influence on construction style of Vernacular buildings. Traditional Buildings design in different regions of India. Indus Valley civilization and Vedic villages & their Architectural styles. Building Material usage change since medieval to known history of India. Indian Public & Residential Buildings designing.</p>
Module 2	<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., Lessons from the 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>
Module 3	<p>Post Independent & 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 4	<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>

	Redefining Traditional and Indian Vernacular styles. Change of Role of Courtyard, opening in the buildings, Natural lighting, Neighbourhood & High-rise Buildings designing. Contemporary public buildings study.
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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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl. No	Tool Name	Parent Industry	Open Source/ Commercial
1			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	15	30
	Semester in Exam-II	15	
End-Sem Summative	End Semester Exam	50	50

BUILDING BYE LAWS AND OFFICE MANAGEMENT (BBOM)

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

CO#	CO Description	BTL	PO Mapping
CO1	To understand the importance of Building codes in different zones and learning about the terminologies	2	PO1, PSO1
CO2	To learn the different norms from National Building Code of India	2	PO1, PSO1
CO3	To learn the basic need of building bye laws of local region and to learn the terminology. To be introduced to Energy Conservation	2	PO1, PSO1
CO4	To learn basis office procedure and management techniques in architecture	2	PO8, 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:

Sl No	Title	Author(s)	Publisher	Year
1	Handbook of Professional Documents 2020,	by Council of Architecture, India	Council of Architecture, India	2020

Sl No	Title	Author(s)	Publisher	Year
2	Model Building ByeLaws 2016,	Municipal Administration and Urban Development Department	Government of Andhra Pradesh	2016
3	Architect's Pocket Book	Jonathan Hetreed, Ann Ross, Charlotte Baden-Powell,	Routledge	2017,

Global Certifications: NA

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill: NA

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	20
	Home assignment	5	
	Quiz	5	
	Attendance	5	
In-Sem Summative	Sem in 1	15	30
	Sem in 2	15	
End-Sem Summative	End-Sem Exam (Paper Based)	50	50

CONTEMPORARY WESTERN ARCHITECTURE (CWA)

COURSE CODE	22AR3116	MODE	Basic	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand Cubism & Constructivism along with various Building styles of Early Modern Architects.	2	PO1, PO3
CO2	Understand Post Modernism and International Style along with Ideas and Works of Various Architects of that time.	2	PO1, PO5
CO3	Understand Critical Regionalism and other alternative practices. along with Ideas and Works of Various Architects of that time.	2	PO3, PO4
CO4	Understand Deconstructivism along with Forms, Ideas and Concepts followed by Various Architects in their works.	2	PO3, PO4

Syllabus

Module 1	Early Modern Architecture: Study of various movements. Boroque-Rococo, Cubism, Constructivism, Brutalist Architecture, Neo-Classism etc., Study of works of Architects: Philip Johnson, Robert Venturi, Frank Lloyd Wright, Mies Vand Rohe, Oscar Niemeyer, Alver Alto, Le Corbusier, Louis Khan, Richard neutral, Richard Neutra, Richard Meier.
Module 2	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, KenzoTange, Minoru Yamasaki, KishoKurokawa, Richard Meier, Toyo Ito.
Module 3	Alternative Practices and Ideas African Architecture, Critical regionalism, works and ideas of Hassan Fathy, Geoffrey Bawa, Tado Ando, Laurie baker and Paulo soleri.
Module 4	22nd Century Architecture Expressionism, Deconstructivism – Works of ZahaHadid, Daniel Libeskind, Frank o gehry, Peter Eisenman, Santiago Calatropa and his structural concepts- News forms and ideas of Norman Foster, Greg Lynn, Rem Koolhaas. Contemporary concepts of Earthships, Energy Efficiency, Sustainability, Floating Architecture, Berm 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	Architecture after Modernism	Diane Ghirardo	Thames & Hudson, London	1990
4	Complexity and Contradiction in Architecture	Robert Venturi		1977

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	15	30
	Semester in Exam-II	15	
End-Sem Summative	End Semester Exam	50	50

SPECIFICATION, ESTIMATION, AND COSTING (SEC)

COURSE CODE	22AR3218	MODE		LTPS	3-0-0-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	An understanding of data required and methods of estimation	2	PO1, PSO1
CO2	Ability to estimate various quantities using different methods	3	PO3, PSO1
CO3	An understanding of the types of estimates and costing	2	PO1, PO3, PSO1
CO4	Knowledge of various specifications and terminology used	2	PO7, PO8, PSO2

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, center line method, partly center 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 labor 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
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.)

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Certified Cost Estimator/Analyst (CCEA®)	The International Cost Estimating and Analysis Association			The International Cost Estimating and Analysis Association	https://www.iceaaonline.com/certification/

Tools used in Practical / Skill: NA

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	BIM	Autodesk	Commercial
2			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	20
	Home assignment	5	
	Quiz	5	
	Attendance	5	
In-Sem Summative	Sem in 1	15	30
	Sem in 2	15	
End-Sem Summative	End-Sem Exam (Paper Based)	50	50

HUMAN SETTLEMENT AND PLANNING (HSP)

COURSE CODE	23AR3223	MODE		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	PO4
CO3	Understand the changing dynamics of Urban Form and its planning according to urban transformation	2	PO4, PO9
CO4	Understand the interrelationship between Human Settlements structure and Social Dynamics	2	PO4, PO9

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 (Neighborhood Planning), Radburn Theory, Satellite Towns, City Beautiful; Concept and Case studies.
Module 3	Town planning & Regional theories like Garden 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.,

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	5	5
	Attendance	5	5
	Home Assignment and Textbook	10	10
In-Sem Summative	Semester in Exam-I	12.5	12.5
	Semester in Exam-II	12.5	12.5
	Surprise Quiz (min 2)	5	5
End-Sem Summative	End Semester Exam	50	50

Professional Electives

PE1: INTERIOR DESIGN STUDIO (IDS)

COURSE CODE	22AR3118A	MODE		LTPS	0-0-4-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the basic design acumen and anthropometry, ergonomics	2	PO1, PO3, PSO2
CO2	To enhance their skills by applying design concept and theme for small spaces	2	PO1, PO5, PSO2
CO3	Apply the skills in Planning of residential spaces with material usage understanding	4	PO3, PO4, PSO2
CO4	Study and apply anthropometry in hospitality related environment.	4	PO3, PO5, PSO2

Syllabus

Module 1	Introduction to parameters of design, anthropometrics and ergonomics, human activity and use interior spaces and furniture.
Module 2	Analysis of design to perceive elements which define the character of the environment. Analyze the design process and concept formation.
Module 3	The student is expected to learn and apply the concepts to design residential interior spaces less than 25sqm carpet area through detailed measured drawings and sketches.
Module 4	The student is expected to learn and apply the concepts to design residential interior spaces less than 25sqm carpet area through detailed measured drawings and sketches.

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	

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	National Council Certified Interior Designer	NCIDQ			NCIDQ	https://www.zippia.com/interior-designer-jobs/certifications/#National-Council-Certified-Interior-Designer

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD	Autodesk	Students' version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation - Lab Exercise	20	20
	Attendance	5	5
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

PE1: FURNITURE DESIGN STUDIO (FDS)

COURSE CODE	22AR3118B	MODE		LTPS	0-0-4-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the basic design acumen and anthropometry, ergonomics	2	PO1, PO3, PSO2
CO2	To enhance their skills by applying design concept and theme to human scale	2	PO1, PO5, PSO2
CO3	Apply the skills in Planning of furniture with material usage understanding	4	PO3, PO4, PSO2
CO4	Study and apply anthropometry in daily use products.	4	PO3, PO5, PSO2

Syllabus

Module 1	A brief introduction to Product Designing – Various elements – History of Product Design – Definition of Product Design, understanding of Product Design - Purpose of Product Design – Role of Product Designers.
Module 2	Definition of human factors, Application of human factors data. Human activities, their nature, and effects. Man-machine system and physical environment. Human performance and system reliability. Information input and processing. Human control systems. Applied anthropometry – Human response to climate.
Module 3	Visual, Auditory, Tactual, Olfactory human mechanisms, Physical space, and arrangement. Visual display, process of seeing, visual discrimination, quantitative and qualitative visual display, Alphanumeric and related displays, Visual codes, and symbols.
Module 4	Design of Household elements, tools and devices – Spoon/Cutlery. Design of furniture – Chairs/Computer table, Kitchen racks, Cabinets etc.Element design for the physically and mentally different people.

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
3	Interior Design Illustrated	Francis D.K.Ching	VNR Publications	1987
4	An invitation to Design	Helen Marie Evans		

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	An Introduction to Upholstery	Building Craft College			Building Craft College	https://www.academiccourses.com/certificate/furniture-design

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation - Lab Exercise	20	20
	Attendance	5	5
In-Sem Summative			
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

PE2: VERNACULAR ARCHITECTURE (VA)

COURSE CODE	22AR3117A	MODE	Basic	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the Vernacular Architecture, its Approaches & Concepts.	2	PO1, PO4
CO2	To Understand the Vernacular styles of Buildings in Western, Northern & North-Eastern India.	2	PO6, PO10
CO3	To Understand the Vernacular Architectural Styles of Southern India.	2	PO3, PO9
CO4	To study and Understand the Influence of Western world on Vernacular Architecture.	2	PO3, PO9

Syllabus

Module 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.
Module 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.
Module 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; Agraharams etc., Karnataka: Houses of Melkote, Madikere etc., Andhra Pradesh – Iktas houses in Nalgonda etc.
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.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Haveli – Wooden Houses and Mansions of Gujarat	V.S. Prammar	Mappin Publishing Pvt. Ltd., Ahmedabad	1989
2	Architecture of the Indian Desert	Kulbushanshan Jain and Minakshi Jain Mud	Aadi Centre, Ahmedabad	1992
3	Indian Architecture according to Manasara Silpasastra,	Acharya Prasanna 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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Nil	Nil	Nil	Nil	Nil	Nil

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Nil	Nil	Nil

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	
	Attendance	5	
	Home Assignment and Textbook	5	
			20
In-Sem Summative	Semester in Exam-I	15	
	Semester in Exam-II	15	
			30

End-Sem Summative	End Semester Exam	50	50
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PE2: Sustainable Architecture – 1 (SA- I)

COURSE CODE	22AR3117B	MODE		LTPS	2-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Fundamentals of Sustainability and its impact on Environment	1	PO7, PO8
CO2	Understanding the new concepts and terminologies of sustainability	2	PO6, PO8, PO9
CO3	To understand the importance of site planning and energy, water efficient landscaping as an important tool in sustainable architecture	3	PO7, PO8
CO4	National and International Case studies of Sustainable Architecture through research summary	3	PO7, PO8, PO9, 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
4	Green Shift: Changing attitudes in architecture to the Natural World	Farmer John & Richardson Kenneth	Architectural Press, Boston	1999
5	Landscape Planning for Energy Conservation	Gray, O., Robinetl	Van Nostrand Reinhold, New York	1984

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	IGBC Green Education	IGBC	Y	Online - MCQ	IGBC	https://igbc.in/igbc/redirectHtml.htm?redVal=showGreenEducationRatingsystemNosignin#eligibility

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home assignment	5	
In-Sem Summative	In Sem Examination 1	12.5	30
	In Sem Examination 2	12.5	
	Surprise quiz (2 Min)	5	
End-Sem Summative	End sem Examination	50	50

PE3: LANDSCAPE DESIGN STUDIO (LDS)

COURSE CODE	22AR3222A	MODE		LTPS	0040	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To develop an understanding about space design at local level	2	PO6, PO7, PO8
CO2	To develop a skill to integrate various knowledge systems to arrive at a design proposal of an urban scale, the process used for the same	3	PO6, PO7, PO9
CO3	To make the students understand the area, scale, design and implementation factors with the involvement of stakeholders	4	PO7, PO8
CO4	To make the students work on relatively large project for incorporating multidisciplinary domains in the projects for consideration of the same.	4	PO4, PO7, PO8, PO9

Syllabus

Module 1	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.
Module 2	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.
Module 3	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.
Module 4	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.

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

Sl No	Title	Author(s)	Publisher	Year
3	Site Engineering for Landscape Architects	Steven Strom, Kurt Nathan, and Jake Woland	Wiley	2013
4	Dictionary of Architecture and Landscape Architecture	James Stevens Curl and Susan Wilson	Oxford University Press	2006
5	Landscape Architectural Graphic Standards	Leonard J. Hopper	John Wiley & Sons	2007

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation Project	20	25
	Attendance	5	
In-Sem Summative	Lab in Sem Exam	25	25
End-Sem Summative	Lab end Sem exam	50	50

PE3: MODULAR CONSTRUCTION STUDIO (MCS)

COURSE CODE	22AR3222B	MODE	Basic	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To develop an understanding about space design at local level	2	PO6, PO8
CO2	To develop integrate various knowledge systems to arrive at a design proposal of a practical scale, the process used for the same	2	PO6, PO7, PO9
CO3	To make the students understand the area, scale, design, and implementation factors with the involvement of Modular construction	2	PO7, PO8, PO10
CO4	To make the students work on a project for incorporating Modular construction	2	PO4, PO7, PO9

Syllabus

Module 1	Principles of Modular construction, Objectives, Types of Modular construction, Delivery methods,
Module 2	Modular building process, Pros & Cons of Modular construction.
Module 3	Identify the participants including customers, Manufacturers, Installers, etc. Design Phase – Site evaluation, design considerations, Scope of work, building codes & specifications.
Module 4	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

Global Certifications: NIL

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1						

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD	Autodesk	Students' version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation - Lab Exercise	20	20
	Attendance	5	5
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

PE4: APPROPRIATE CONSTRUCTION TECHNOLOGIES

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

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

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, 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

2	Non-conventional Energy Resources	D S Chauhan and S K Sreevasthava	New Age International Publishers	
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Certification in construction technology	Institute of Real Estate and Finance	Y	Online	IREF (Global Management School)	https://irefglobal.com/courses/certification-in-construction-technology/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Ecotect	Autodesk	Commercial and Student versions
2	Revit Architecture	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	5	20
	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
	Tutorial Continuous Evaluation	0	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
	Practical In-Sem	0	
	Skill In-Sem	0	
	Global Challenges - Leaderboard	0	
End-Sem Summative	End Sem Exam (Paper Based)	50	50
	Project Demonstration	0	
	Paper Presentation	0	

PE4: Energy Efficient Buildings (EEB)

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

CO#	CO Description	BTL	PO Mapping
CO1	To understand the importance of energy efficiency in buildings and strategies involved.	2	PO1, PO4
CO2	To understand the importance of relevance of water in built environment	2	PO6
CO3	Introduction to green rating systems and building codes	2	PO9, PO3
CO4	Introduction to simulation and analysis software	2	PO9, PO3

Syllabus

Module 1	Energy Efficiency in buildings: General understanding of energy efficiency in thermal appliances, electrical appliances, HVAC systems, Energy performance assessment in terms of building operations, and embodied energy; BEE ratings for electrical appliances.
Module 2	Water in built environment: water crisis and increased misuse, water pollution and social implications. Groundwater and surface water management, site planning for efficient water management. Traditional water harvesting techniques in different climatic zones.
Module 3	Green rating systems: Introduction to green rating systems like LEED, IGBC, GRIHA Criteria for rating and general understanding and comparison between various rating systems NBC and other national codes for green buildings.
Module 4	Simulation Software: General introduction and application of Building Simulation software for various applications like thermal comfort, day lighting, artificial lighting, and HVAC systems.

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
4	Smart Buildings Digitalization: IoT and Energy Efficient Smart Buildings Architecture and Applications	O.V. Gnana Swathika (editor), K. Karthikeyan (editor), Sanjeevikumar Padmanaban (editor)	Taylor & Francis;CRC Press	2022

5	Thermal Comfort and Energy-Efficient Cooling of Nonresidential Buildings	Doreen E. Kalz, Jens Pfafferott	Springer International Publishing	2014
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	IGBC Accredited Professional Examination	Indian Green Building Council	Y	Online	Indian Green Building Council	https://igbc.in/igbc/redirectHtml.htm?redVal=showigbcApnosign

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Ecotect	Autodesk	Commercial and Student versions
2	Revit Architecture	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	5	20
	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
	Tutorial Continuous Evaluation	0	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
	Practical In-Sem	0	
	Skill In-Sem	0	
	Global Challenges - Leaderboard	0	
End-Sem Summative	End Sem Exam (Paper Based)	50	50
	Project Demonstration	0	
	Paper Presentation	0	

PE5: Advanced Building Techniques

COURSE CODE	23AR4127A	MODE		LTPS	0-0-4-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Familiarity with the advanced construction techniques in RCC and their adaptability to architecture	2	PO2
CO2	Understand and apply various pre-engineered Concrete structures, adaptation in large-span structures, pre-engineered Steel structures, adaptation in steel frames/space frames and their components.	2	PO2
CO3	Understand and apply different aspects and technologies. involved in the construction of High-rise buildings	2	PO2, PO3
CO4	Introduction to advanced building materials and their application in the contemporary architectural practice	2	PO2

Syllabus:

Module 1	Advanced construction method in RCC, prestressed concrete beams, slabs, frames, and lift slab construction. Post-tensioning, multi-storied building frames, circular slabs, and beams. Uses of rapid hardening cement, Ready mix concrete and lightweight concrete. Folded plates like prismatic, V type, trough type, pyramidal, and prismatic.
Module 2	Shell structure, cyclonic shell, hyperbolic paraboloid. Construction techniques for the erection of space frames, suspended roofs, membrane structures, and cable structures.
Module 3	Studies on large-span structures, multistoried buildings, marine structures, special application steel structures.
Module 4	Advanced building materials, plastic, PVC, metals, synthetic boards, fireproof/ resistant boards/ tiles, acoustic materials, composite panels and their application, non-load-bearing gypsum blocks, etc.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Advanced Construction Technology	Roy Chudley & Roger Greeno	Prentice Hall (UK),	2006
2	Barry's Advanced Construction of Buildings	Stephen Emmitt, Christopher A. Gorse	Wiley-Blackwell	2014

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification

1	Certification in Advanced Construction Management	Institute of Real Estate and Finance	Y	Online	IREF (Global Management School)	https://irefglobal.com/courses/certification-in-advanced-construction-management-2/
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Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Revit Architecture	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	5	20
	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
	Tutorial Continuous Evaluation	0	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
	Practical In-Sem	0	
	Skill In-Sem	0	
	Global Challenges - Leaderboard	0	
End-Sem Summative	End Sem Exam (Paper Based)	50	50
	Project Demonstration	0	
	Paper Presentation	0	

PE5: ARCHITECTURE PHOTOGRAPHY (AP)

COURSE CODE	23AR4127B	MODE	Basic	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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Course Outcomes

CO	CO Description	BTL	PO Mapping
CO1	Familiarity with the photographic knowledge and equipment	1	PO10, PSO1
CO2	Familiarity with photojournalism and visual communication techniques	2	PO10, PSO1
CO3	Application of photographic equipment and techniques	2	PO10, PSO1
CO4	Creating visuals for buildings of architectural importance	2	PO10, PSO1

Syllabus

Module 1	Introduction to architectural photography and role of the photographic image in the global world – basic instruction in Photojournalism.
Module 2	Equipment: cameras and lenses – techniques: film speed, exposure measurement, grey scale– photo-finishing and editing digital images.
Module 3	Perspectives: 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.	

Global Certifications:

Sl No	Title	Certification Provider	Proctored (Y/N)	Form at of the Exam	Exam Provider	URL of the Certification
1	INTERNATIONAL CERTIFICATE IN PHOTOGRAPHY	Le Mark School of Art		Online		https://lemarkinstitute.com/international-certificate-in-photography-online-course/ https://www.coursera.org/learn/industrial-iot-markets-security

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Photoshop	Adobe	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative			
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

PE6: Housing (HSG)

COURSE CODE	23AR4128A	MODE		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

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	GeofreyK.Payne	John Wiley and Sons,Chichester	1984
3	Housing by people	John F.C.Turner	Marison Boyars, London,	1976

4	Housing, Climate and Comfort	Martin Evans	Architectural Press, London	1980
5	Urban Projects Manual	Forbes Davidson and Geoff Payne	Liverpool University Press, Liverpool	1983

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	5	5
	Attendance	5	5
	Home Assignment and Textbook	10	10
In-Sem Summative	Semester in Exam-I	10	10
	Semester in Exam-II	10	10
	Surprise Quiz (min 2)	10	10
End-Sem Summative	End Semester Exam	50	50

PE6: Intelligent Buildings

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

CO#	CO Description	BTL	PO Mapping
CO1	To understand intelligent buildings' concept and its evolution	2	PO7
CO2	To understand energy management systems and indoor environment quality of buildings	2	PO7
CO3	To understand energy conservation technology in buildings and its application	3	PO7, PO3
CO4	To understand and apply building management systems	4	PO7, PO3

Syllabus

Module 1	Intelligent Buildings: Concept, Definition, intelligent Architecture and structure, evolution of intelligent buildings, IB assessment criteria – intelligent homes. Energy Management in Design: Natural building design consideration – Energy efficient strategies – Contextual factors – Longevity and process Assessment – Renewable energy sources and design- Advanced building Technologies- Smart buildings.
Module 2	Energy Management in Services: Energy in building design – Energy efficient and environment friendly building – Thermal phenomena – thermal comfort – indoor air quality – passive heating and cooling systems – Energy Analysis – Active HVAC systems- Preliminary Investigation – energy audit – types of energy audit – Energy flow diagram – Energy consumption/unit production – identification of wastage – priority of conservative measures –Maintenance of management program.
Module 3	Building Energy Conservation Technologies: Standards of energy efficiency in building. Trends in energy consumption. Energy audit: evaluation of energy performance of existing buildings, use of computer models, impact of people behavior. Energy efficiency in buildings: approaches, materials and equipment, operating strategies, evaluation methods of energy savings. Optimum Selection of energy sources. Air-to-air energy recovery.
Module 4	Control Systems in Buildings: Introduction to automatic control systems, control issues related to energy conservation, interior air quality and thermal comfort in buildings – ventilation. Classification of HVAC control system: selection and sizes of sensors, actuators, and controllers. Practical HVAC control system Designing and turning controllers – Building automation systems, design for security.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Environmental control system	Moore F.	McGraw Hill, Inc.	1994
2	Wind and Light: Architectural design strategies	Brown, G Z, Sun	John Willey	1985
3	Winning passive Solar Design	Cook, J, Award	McGraw Hill	1984

4	Smart Building Systems for Architect	James M Sinopoli	Butterworth-Heinemann	2009
5	Intelligent Buildings: An Introduction	Derek Croome-Clements (Editor)	Routledge	2014

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Smart Building Technician Architecture and Construction	Alison Empower Yourself	Y	Online	Alison Empower Yourself	https://alison.com/careers/architecture/smart-building-technician
2	Revit for Systems Design and Smart Buildings	Linkedin	Y	Online	Oneyama Udeze	https://www.linkedin.com/learning/revit-for-systems-design-and-smart-buildings

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Ecotect	Autodesk	Commercial and Student versions
2	Revit Architecture	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	5	20
	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
	Tutorial Continuous Evaluation	0	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
	Practical In-Sem	0	
	Skill In-Sem	0	

	Global Challenges - Leaderboard	0	
End-Sem Summative	End Sem Exam (Paper Based)	50	50
	Project Demonstration	0	
	Paper Presentation	0	

PE7: Architectural Conservation (AC)

COURSE CODE	22AR4124A	MODE	Offline	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To make students understand about the basics of Conservation in India.	2	PO9
CO2	To Study the Conservation Practices.	2	PO3
CO3	To explain the importance & analysis of Urban Conservation	2	PO3
CO4	To Discuss about Conservation planning & Adaptive Conservation.	2	PO4

Syllabus

Module 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
Module 2	Conservation in India: Monument conservation and the role of Archeological 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.
Module 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.
Module 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, Massachusetts	1979

Sl No	Title	Author(s)	Publisher	Year
2	Historic Preservation: Curatorial Management of the Built World	James M. Fitch	University Press of Virginia; Reprint edition	1990
3	a Richer Heritage: Historic Preservation in the Twenty-First Century	Robert E. Stipe	Univ. of North Caroling press	2003
4	Conservation Manual	Bernard Fielden	INTACH Publication	1989

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	15	30
	Semester in Exam-II	15	
End-Sem Summative	End Semester Exam	50	50

PE7: SET DESIGN (SD)

COURSE CODE	22AR4124B	MODE		LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

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

Syllabus

Module 1	DANCE/ DRAMA/ LECTURE/ THEATRE: Background study of the Event Scenario. Historical Evolutionof 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 likeSound, 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 effect, 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. Ebrahimian.		

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Professional Set Design Certification from the International Alliance of Theatrical Stage Employees	IATSE			IATSE	https://resumecat.com/blog/set-designer-certifications

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD	Autodesk	Students' version and commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	10
	Attendance	5	5
	Home Assignment and Textbook	5	5
In-Sem Summative	Semester in Exam-I	15	15
	Semester in ExamII	15	15
End-Sem Summative			
	End Semester Exam	50	50

PE8: DISSERTATION (DIS)

COURSE CODE	22AR4228A	MODE		LTPS	0-4-0-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the importance of reasoning	2	PO7, PO8
CO2	To select the topic which may eventually culminate in the Architectural Design Thesis in the subsequent semester.	2	PO3, PO9
CO3	To select and apply the concept of reasoning to the chosen topic	3	PO6, PO8, PO7
CO4	To analyze the spaces, connectivity, and the standards of sustainable and service intensive building. Case study	5	PO10
CO5	To write a report on the research done in the topic with appropriate studies.	5	PO6, PO8, PO7

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
Module 2	Students may be encouraged to select the topic which may eventually culminate in the Architectural Design Thesis of the subsequent semester.
Module 3	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
Module 4	. 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 Press.	2006
3	Conducting research literature reviews: from paper to the Internet	Fink, A.	Sage.	1998
4	Writing for academic journals	Murray, R	Berkshire	2005

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Understanding Research Methods	University of London			University of London	https://www.coursera.org/learn/research-methods

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation -Project	20	20
	Attendance	5	5
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

PE8: THESIS SEMINAR (TS)

COURSE CODE	22AR4228B	MODE	Basics	LTPS	0-4-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Students will explore and research topics of their interest; then organize presentations.	2	PO1, PO4
CO2	To help students improve as speakers. All enrolled students must be present at each seminar. It is expected that students will actively participate by asking questions of the speaker.	2	PO6, PO10
CO3	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.	3	PO3, PO9
CO4	Each student will give two 20-minute presentations. The student's seminar should cover a minimum of four related papers in the topic chosen.	4	PO3, PO9

Syllabus

Module 1	Students will explore and research topics of their interest; then organize presentations.
Module 2	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 3	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.
Module 4	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 McMorrough	Rockport Publishers	2018
4	Architectural Design: Conception and Specification of Interactive Systems	Chris A. Vissers	Routledge	2016

5	The Future of Architecture in 100 Buildings	Marc Kushner	Simon & Schuster	2015
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	
	Continuous Evaluation - Project	20	
	Lab in Semester Exam	25	
End-Sem Summative	Exam - Viva	50	
			100

PE9: Urban Design (UD)

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

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

Syllabus

Mod ule 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
Mod ule 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
Mod ule 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.
Mod ule 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

5	A pattern language	Christopher Alexande, Sara Ishikawa, Murat Silverstein	Oxford Alexander	1976
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	HOME ASSIGNMENTS	5	
	ATTENDANCE	5	
In-Sem Summative	SEM IN EXAMINATIONS 1	12.5	30
	SEM IN EXAMINATION 2	12.5	
	SUPRISE QUIZ	5	
End-Sem Summative	END SEM EXAMINATIONS	50	50

PE9: Transportation Planning (TSP)

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

CO#	CO Description	BTL	PO Mapping
CO1	Study the Basic elements and various category of vehicles depending upon the category of Roads exiting	1	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 Behavior, 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	<p>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.,</p> <p>Traffic signals, Traffic control, street lighting & Road accidents statistics:</p> <p>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.</p>
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	<p>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.</p> <p>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.</p>

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	5	5
	Attendance	5	5
	Home Assignment and Textbook	10	10
In-Sem Summative	Semester in Exam-I	12.5	12.5
	Semester in Exam-II	12.5	12.5
	Surprise Quiz (min 2)	5	5
End-Sem Summative			
	End Semester Exam	50	50

PE10: BEHAVIORAL ARCHITECTURE (BA)

COURSE CODE	23AR4234A	MODE	Basics	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Identify concepts and concerns of perception. Identify and develop the sensitivity to the needs of users and clients	2	PO1, PO4
CO2	Understanding the designing and planning for urban quality	2	PO6, PO10
CO3	Identify and apply the macro and micro built environment and behavioral aspects	3	PO3, PO9
CO4	Analyze the relationship between built - environment and perception	4	PO3, PO9

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 Behavioral aspects: Relationship of built environment to society, spatial relationship within built - environment, influence of physical environment on human behavior, influences of built environment on human behavior
Module 4	Built - Environment and Perception: Case studies of tall buildings, low raise neighborhoods, 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
4	Framing Places, mediating power in built form	Dovey K	Rent Ledge	1999

5	changing Architectural education	Nicol D and Pilling S	Towards New	2000
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Home assignments	10	
	Attendance	5	
	ALM	10	
			25
	Semester in Exam - I		
	Semester in Exam – II	25	
	Class exercise		
			25
End-Sem Summative			
	End Semester Exam	50	50
			100

PE10: Disaster Mitigation and Management (DMM)

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

CO#	CO Description	BTL	PO Mapping
CO1	To Understand the necessity for disaster management and measures that are to be followed.	2	PO3, PSO1
CO2	To Study the Disaster preparedness and Involving Design Considerations for buildings	2	PO3, PSO1
CO3	To study the Design considerations for Disaster management and precautions.	2	PO3, PSO1
CO4	To Understand the Relief & Rehabilitation for Disasters	2	PO3, 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)	Publisher	Year
1	Disaster Hits Home, New policy for Urban Housing Recovery,	Mary C 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- Code of Practice-	Bureau of Indian Standards;	1993	BIS
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	IFRC-TISS Certificate in Disaster Management	International Federation of Red Cross and Red Crescent Societies Tata Institute of Social Sciences		One year course	International Federation of Red Cross and Red Crescent Societies Tata Institute of Social Sciences	https://www.preventionweb.net/resource/ifrc-tiss-certificate-disaster-management

Tools used in Practical / Skill: NA

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Arc GIS		Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	20
	Home assignment	5	
	Quiz	5	
	Attendance	5	
In-Sem Summative	Sem in 1	15	30
	Sem in 2	15	
End-Sem Summative	End-Sem Exam (Paper Based)	50	50

Building Science and Applied Engineering

Building Materials - I (Brick, Stone, Wood) (BM-I)

COURSE CODE	23AR1103	MODE		LTPS	2-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of the building materials -Soils and Bricks	2	PO3, PO6
CO2	Understanding of the building materials -stones & sand	2	PO6
CO3	Understanding of the building materials Lime and Cement	2	PO6
CO4	Understanding of the building materials-Timber & Bamboo	2	PO4, PO6

Syllabus

Module 1	Soils: Fundamentals about soil and it's uses, formation of soil, components and properties of soil, soil structure, classification, and study of the major types of soils in India. Bricks: Composition of good brick, various stages of manufacturing processes of bricks, properties and uses of bricks, classification of bricks, requirements and tests for good bricks, shapes of bricks, firebricks, and substitutes for bricks. Clay products: Tiles, terra cotta, stoneware, earthenware, porcelain, and clay blocks, their properties and uses.
Module 2	Stones: Geological Classification of rocks –test for stones, uses of stones, deterioration of stones for various causes, preservation of stones, stones available for construction in India and their properties and uses. Stones for finishes –cutting & polishing. Artificial stone and their uses. Sand: Study of sands like pit, river and sea sand, Types and properties of sands used in building construction, impurities and removal of silt and organic matter, bulking of sand, different grades of sand with respective to size and applications Standards, use in mortar and concrete.
Module 3	Lime: Ingredients and manufacturing of lime, classification of limes, properties, and uses of various types of limes, Lime mortar and surkhi. Cement: Ingredients and manufacturing of cement, classification of cements, properties, and uses of various types of cements and its application in building industry.
Module 4	Timber: Classification of trees, structure of trees, Storage of timber, Uses of timber, characteristics, seasoning of timber, Defects, diseases and decay of timber, Preservation, Fire resistance, Conservation of timber and processed woods. Bamboo: Anatomy of Bamboo, Properties, strength, processing, harvesting, working of Bamboo tools – Treatment and preservation of Bamboo and uses of Bamboo. Cane, Propagation Roofing materials – Thatch, grass, Bamboo, reeds.

Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	Construction Materials and Processes	Don A. Watson	1972	McGraw Hill
2	Building Construction	W.B. McKay	1981	Vol, 1 and 2, Longmans, UK
3	Building Construction	S.C Rangwala “	2000	Charotar Publishing House, India.
4	A Textbook of Building Construction	S.K.Sharma	1998	Chand & Co Ltd., New Delhi,

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	10	30
	Surpize Quiz	10	
	Semester in ExamII	10	
End-Sem Summative			
	End Semester Exam	50	50S

Ecology & Environment (EE)

COURSE CODE	22UC0009	MODE	General	LTPS	2-0-0-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Define to articulate basic understanding of the importance of Environmental education and conservation of natural resources. conservation of natural resources and Energy resources.	2	PO 7
CO2	Understand concepts of ecosystems and learn methods for conservation of habitats and biodiversity.	2	PO 7
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	PO 7
CO4	Recognize the knowledge on environmental legislation, disaster management and EIA process.	2	PO 6

Syllabus

Module 1	The Multidisciplinary nature of Environmental Studies: Introduction to Environment: Definition – scope – importance –Multidisciplinary nature of Environmental Studies, Need for public awareness. Institutions and people in the Environment. Natural Resources: Renewable and Non-Renewable Resources: Forest resources: Uses – Deforestation–causes, effects and impacts, Afforestation Programmes-Socio-forestry, Agro-forestry, Vanasamrakshana programmes, Mining its impact on environment: mining, dams and their effects on forests and tribal people. Water resources: Distribution of surface and ground water, Aquifers, – floods – drought – conflicts over water, dams - benefits and problems, Water conservation – rainwater harvesting – watershed management, Cloud seeding Mineral resources: Use – exploitation – environmental effects –. Food resources: Changes in agricultural methodologies, comparison between old and new methods of farming, Green Revolution, Environmental Impact Assessment of conversion of agricultural lands– effects of modern agriculture, Drip Irrigation – fertilizer-pesticide problems, Eutrophication, Vermicompost – waterlogging, blue baby syndrome – Energy resources: Growing energy needs – renewable and non-renewable energy sources – Solar, wind, geothermal, tidal, bio energies. Land resources: Land as a resource – land degradation- . Soil erosion: Importance of soil, Types of soil erosion, Causes and effects of soil erosion. How to control soil erosion. Role of an individual in conservation of natural resources
Module 2	Ecosystems: Concept of an ecosystem: Structure and function of an ecosystem - Producers – consumers – decomposers with examples, Energy flow in the ecosystem – Ecological succession– Food chains – food webs and ecological pyramids. Types of ecosystems. characteristic features, structure and function of the following ecosystem a Forest ecosystem b. Grassland ecosystem c. Desert ecosystem e. Aquatic ecosystem (ponds, streams, lakes, rivers, oceans, estuaries). Biodiversity and its Conservation: Introduction – Introduction – Definition: genetic, species and ecosystem diversity. • Biogeographical classification of India • Value of biodiversity: consumptive use,

	productive use, social, ethical, aesthetic and option values Biodiversity at global, National, and local levels • India as a mega-diversity nation • Hotspots of biodiversity. • Threats to biodiversity: habitat loss, poaching of wildlife, man- wildlife conflicts. • Endangered and endemic species of India • Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity.
Module 3	Environmental Pollution: Definition •Causes, effects and control measures of - a. Air pollution b. Water pollution c. Soil pollution d. Marine pollution. e. Noise pollution f. Thermal pollution g. nuclear hazards • Solid waste Management Causes, effects, and control measures of urban and industrial wastes. • Role of an individual in prevention of pollution. Pollution case studies. • Disaster management floods, earthquake, cyclone, and landslides. Social Issues and the Environment • From Unsustainable to Sustainable development • Urban problems related to energy • Water conservation. rainwater harvesting, watershed management Resettlement and rehabilitation of people its problems and concerns. Case studies.
Module 4	Environmental ethics issues and possible solutions. Climate change. global warm acid rain, ozone layer depiction. nuclear accidents and holocaust. Case studies. Wasteland reclamation. •Environmental Protection Act, Air (Prevention and Control of Pollution) Act Water (Prevention and control of Pollution) Act • Wildlife Protection Act• Forest Conservation Act • Issues involved in enforcement of environmental legislation. • Public awareness.: Human Population and the Environment• Population growth, • Population explosion Family Welfare Programme. • Environment and human health. • Human Rights. Value Education. • HIV /AIDS. • Case Studies.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Textbook of Environmental Studies	Erach Bharucha	Universities Press (India) Pvt Ltd	2010
2	Environmental Studies	Benny Joseph	Tata McGraw Hill	2009
3	Textbook of Environmental Studies	Deeksha Deve and S.S. Kateswa	Cengage learning India pvt ltd	2009
4	Environmental Studies	Anubha Kaushik, C.P. Kaushik	New Age International	2007

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	NA	NA	NA	NA	NA	NA

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA	NA	NA
2			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	10	25
	Home Assignment & Textbook	10	
	Attendance	5	
In-Sem Summative	In-Sem 1	17.5	35
	In-Sem 2	17.5	
End-Sem Summative	End-Sem Exam (Paper Based)	40	40

Design of Structures - I (Plane trusses, shear force and

bending moment) (DoS-I)

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

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

Syllabus

Module 1	Introduction to Forces and Structural Systems: 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 statically 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

Sl No	Title	Author(s)	Year	Publisher
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 Company, .

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	DESIGN OF STEEL STRUCTURES	NPTEL SWAYAM	Prof Damodar maity, IIT Kharagpur			https://archive.nptel.ac.in/courses/105/105/105105162/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		
2			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	12.5	30
	Surpize Quiz	5	
	Semester in ExamII	12.5	
End-Sem Summative	End Semester Exam	50	50

Building Material II (Cement, R.C.C, and Glass) (BM-II)

COURSE CODE	23AR1206	MODE	Basic	LTPS	2-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the building materials -Ferrous &Nonferrous metals	2	PO1
CO2	Understanding of the building materials – Cement mortar and concrete & Reinforced cement concrete.	2	PO1
CO3	Understanding of the building material - Glass.	2	PO1
CO4	Understanding of the building material - Paints.	2	PO1

Syllabus

Module 1	<p>FERROUS & NON-FERROUS METALS</p> <p>FERROUS METALS: Properties and uses of cast iron, wrought iron, pig iron and steel. Market forms of steel: structural steel, stainless steel, steel alloys –Their application in building industry.</p> <p>NON-FERROUS METALS –: Properties and uses of aluminum, zinc, lead, copper etc., Their application in building industry.</p>
Module 2	<p>CEMENT MORTAR AND CONCRETE & R.C.C</p> <p>CEMENT MORTAR AND CONCRETE: Introduction to Cement mortar and concrete and its constituents and aggregates; Properties and uses, methods of preparation & handling. Study and application of different mortars and concretes. Grading: Importance, fineness modulus, water cement ratio, mixing, placing, and curing.</p> <p>REINFORCED CEMENT CONCRETE: Introduction to R, C.C and its constituents and aggregates; Properties and uses, methods of preparation & handling. Study and application of different types of R.C.C.</p>
Module 3	<p>GLASS</p> <p>Composition of glass, brief study on manufacture, treatment, properties, and uses of glass. Types of glass - float glass, cast glass, glass blocks, and foamed glass. Decorative glass, solar control, toughened glass, wired glass, laminated glass, fire-resistant glass, glass blocks, structural glass - properties and application in building industry, glazing and energy conservation measures.</p>
Module 4	<p>PAINTING, VARNISHING& MISCELLANEOUS MATERIALS:</p> <p>Painting: Characteristic of an ideal paint, types of paints, defects in painting, painting on different surfaces. Varnishing: Varnish types, Process of varnishing. Miscellaneous materials like Epoxy, Melamine, Putty, Foams, Bitumen etc.,</p>

Reference Books:

Sl No	Title	Author(s)	Year	Publisher
1	Engineering Materials	S.C.Rangwala	1997	Charotar Publishing House
2	Building Materials	S.K Duggal,	1997	Oxford and IBM Publishing Co, Pvt. Ltd

Sl No	Title	Author(s)	Year	Publisher
3	Building Materials	P.C Varghese,	2005	Prentice Hall of India Pvt. Ltd
4	Materials for Architects and Builders	Arthur Lyons,	1997	An introduction Arnold, London
5	Construction Materials and Processes	Don A.Watson,	1986	McGraw Hill Book Company, .

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Building materials and construction	NPTEL ,IIT DELHI			Prof B.Bhattacharjee,	https://archive.nptel.ac.in/courses/105/102/105102088/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	5	20
	Attendance	5	
	Home Assignment and Textbook	10	
In-Sem Summative	Semester in Exam-I	12.5	30
	Surpize Quiz	5	
	Semester in Exam II	12.5	
End-Sem Summative	End Semester Exam	50	50

Design of Structures - II (Design of beams and columns) (DoS-II)

COURSE CODE	23AR2107	MODE		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	PO2
CO2	Understanding the properties of structural timber and bamboo	4	PO2
CO3	Design of flexure members of timber and design of simple truss.	4	PO3
CO4	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 flitched 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 Company, .
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	DESIGN OF STEEL STRUCTURES	NPTEL SWAYAM	Prof Damodar maity, IIT Kharagpur		NPTEL	https://archive.nptel.ac.in/courses/105/105/105105162/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	12.5	30
	Surprise Quiz	5	
	Semester in Exam II	12.5	
End-Sem Summative			
	End Semester Exam	50	50

Climate Responsive Architecture (CRA)

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

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

Syllabus

Module 1	<p>Climate and Human Comfort</p> <p>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.</p>
Module 2	<p>Heat Flow through Building Envelope Concepts</p> <p>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)</p> <p>– Time lag and decrement – Types of envelopes with focus on glass.</p> <p>Design of Solar Shading Devices</p> <p>Movement of sun – Locating the position of sun – Sun path diagram – Overhead period–Solar shading– Shadow angles – Design of appropriate shading devices</p>
Module 3	<p>Air Movement due to Natural and Built Forms</p> <p>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.</p>
Module 4	<p>Climate and Design of Buildings</p> <p>Design strategies in warm humid climates, hot humid climates, hot and dry climates, and cold climates – Climate responsive design exercises</p>

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

Sl No	Title	Author(s)	Publisher	Year
3	Manual of Tropical Housing and Building- Climatic Design	O.H. Koenigsberger and Others	Orient Longman, Madras, India,	2010
4	Handbook on Functional Requirements of Buildings other than Industrial Buildings - Part I – IV	Bureau of Indian Standards IS 3792	Bureau of Indian Standards IS 3792	1987
5	Climate and Architecture, Applied Science,	Givoni, Man,	Banking Essex,	1992

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	E- Quest	Informer Technologies	Open
2	Design Builder	Design Buider	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total Marks
In-Sem Formative	ALM	10	20
	HOME ASSIGNMENTS	5	
	ATTENDANCE	5	
In-Sem Summative	SEM IN EXAMINATIONS 1	12.5	30
	SEM IN EXAMINATION 2	12.5	
	SUPRISE QUIZ	5	
End-Sem Summative	END SEM EXAMINATIONS	50	50

Building construction-I (B.C I)

COURSE CODE	23AR2158	MODE	Basic	LTPS	0-4-0-4	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	to understand natural materials like stone used in the building construction, method of construction and its application & usage in building industry & types of masonry, it's systems & techniques.	2	PO6
CO2	To understand the brick as basic building material & application of clay products in construction sector, methods & techniques.	2	PO6
CO3	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.	4	PO6
CO4	Students should be able to analyze the different types of brick masonry & construction methods and details of contemporary and traditional work method demonstrate the techniques through study models	4	PO6

Syllabus

Module 1	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 & polishing – granite and marble. Artificial stone and their uses & types of stone masonry.
Module 2	Bricks & Clay Products: 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.
Module 3	CO3 Basic Building Components, Foundation, Walls & roofs: Basic building components: Cross section of a small building to understand foundation, plinth beam flooring, sill, lintel, roof beam and slabs, Parapet & weathering course; Foundation: typical types of foundations in stone, brick & RCC. Walls: Details of walls section across the opening (door & window) Roofs: simple configurations and details of various forms of roofs (flat, slope pyramidal & dome). Basic building components: Cross section of a small building to understand foundation, plinth beam flooring, sill, lintel, roof beam and slabs, Parapet & weathering course; Foundation: typical types of foundations in stone, brick & RCC. Walls: Details of walls section across the opening (door & window) Roofs: simple configurations and details of various forms of roofs (flat, slope pyramidal & dome).

Module 4	<p>Brick, Stone Masonry & different types of masonry systems: 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> <p>Brick Roofing: Types of brick roofs, Madras terrace roof, jack arch roof, brick arches and domes, reinforced brick roofs, Types of arches, vaults and domes, and construction of arches, vaults, and domes. Application of stone masonry: Foundation walling, types of different stone masonry (rubble & ashlar masonry), stone piers, arches, facing or cladding stone systems & composite masonry</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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Hand drawings		
2	Model making		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	
	Home assignments	10	
	Practical continuous evaluation	5	
	Attendance	5	25
In-Sem Summative			
	Practical in Sem	25	25
End-Sem Summative			
	Lab end Sem examination	50	50

Design of Structures - III (Design of columns and footings) (DoS-III)

COURSE CODE	23AR2211	MODE		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
CO2	Understanding and designing of columns	3	PO1, PO3
CO3	Understanding and designing of footings and staircases	3	PO1, PO3
CO4	Understanding and analysis a given section for under or over design and load carrying capacity	3	PO1, PO3

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 behavior, and bi-axial behavior. 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

Global Certifications:

Mapped Global Certifications:						
SI No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Design of Reinforced Concrete Structures	NPTEL SWAYAM	Prof N.DHANG IIT Kharagpur		NPTEL	https://nptel.ac.in/courses/105105105

Tools used in Practical / Skill:

SI No	Tool Name	Parent Industry	Open Source/ Commercial
1	STAAD	Bentley	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	12.5	30
	Surprise Quiz	5	
	Semester in Exam II	12.5	
End-Sem Summative			
	End Semester Exam	50	50

Building Services – I (Plumbing and sanitation) (BS-I)

COURSE CODE	22AR2211	MODE		LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To know about the water treatment, distribution, and wastewater treatment methods & disposal.	1	PO7
CO2	Understanding the building sanitation method and different types of plumbing systems	2	PO8
CO3	To understand the layouts and sanitary layouts of a residence.	2	PO8
CO4	To understand the use and installation of various plumbing fixtures and to know the sewerage systems for sanitary conveyance.	2	PO8, PSO2

Syllabus

Module 1	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 – 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-
Module 2	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, 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.
Module 3	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. 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 traps used in buildings.
Module 4	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 & capacity calculation. Sewage treatment. 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 Neighborhood - 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 Neighborhood.
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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)

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Form at of the Exam	Exam Provider	URL of the Certification
1	Building materials and construction	NPTEL, IIT DELHI			Prof B.Bhatta charjee,	https://archive.nptel.ac.in/courses/105/102/105102088/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	25
	Attendance	5	
	Home Assignment and Textbook	10	
In-Sem Summative	Semester in Exam-I	10	25
	Surpize Quiz	5	
	Semester in Exam II	10	
End-Sem Summative	End Semester Exam	50	50

Building Construction-II (B.C II)

COURSE CODE	23AR2260	MODE		LTPS	0-4-0-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the construction of doors and windows in accordance with the type of usage.	2	PO1
CO2	To understand the uses of wooden trusses and staircases in construction industry/practice	2	PO1
CO3	To understand the installation of paneling, soundproof and light weight partitions	2	PO3
CO4	To understand the techniques of bamboo constructions and the construction techniques of wall and kitchen cabinets	2	PO3

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 & windows-terms associated & positioning. Windows (paneled, louvered, glazed and sliding windows) - Doors (paneled, glazed, sliding, sliding/folding, louvered and pivoted) – Ventilators (top hung, bottom hung, pivoted, louvered, and glazed).</p>
Module 2	<p>Floors, Trusses, and Staircases: Methods of construction using natural timber in various structural components of the building such as floors, walls, and roof trusses - Exercises involving the above through case studies - Types of timber staircases. Methods of making wooden floors different types of trusses Methods of construction of timber staircases- Basic principles and design details including detailing of handrail and baluster- Exercises involving the above through drawings.</p>
Module 3	<p>Partitions and Panelling: Methods of construction using man-made timber products such as ply woods, block boards, MDF, etc., in fixed partition, sliding/folding partitions, wall Panelling. - Exercises of the above through drawings and case studies.</p>
Module 4	<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>Furniture and Fitments</p> <p>Showcase and Shelf: Methods of making the TV Shelf, showcase and dressing wardrobe. Cupboard & cabinet: kitchen cupboards and wall cabinets showing the details of joinery and material finishes.</p>

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AutoCAD	Autodesk	Student version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	25
	Home assignments	10	
	Practical continuous evaluation	5	
	Attendance	5	
In-Sem Summative	Practical in Sem	25	25
End-Sem Summative			
	Lab end Sem examination	50	50

Design of Structures-IV (Detailing of Structural Member) (DOS IV)

COURSE CODE	23AR3115	MODE		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	Analysis and Design of reinforcement for a section	3	PO2
CO3	Design & detailing of one way and two-way slab.	3	PO3
CO4	Detailing for special structures such as deep beams, corbels, shear walls etc.	3	PO3

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proposed (Y/N)	Format of the Exam	Exam Provider	URL of the Certification

1	Revit Structure	Koeing India	Y	Online	Koeing India	https://www.koenig-solutions.com/revit-structure-training
2	STAAD Pro Course Master the industry leading structural analysis and design tool used by Civil & Structural Engineers	Internshala Trainings	Y	Online	Internshala Trainings	https://trainings.internshala.com/staad-pro-course/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Staad- Pro	Benteley	Commercial and Student versions
2	Revit Structure	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	5	20
	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
	Tutorial Continuous Evaluation	0	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
	Practical In-Sem	0	
	Skill In-Sem	0	
	Global Challenges - Leaderboard	0	
End-Sem Summative	End Sem Exam (Paper Based)	50	50
	Project Demonstration	0	
	Paper Presentation	0	

Building Services II (Electrical and Acoustics) (BS III)

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

CO#	CO Description	BTL	PO Mapping
CO1	Study of electricity, installations, wiring and principles of distribution and safety	2	PO1
CO2	Know the application of artificial illumination, and lighting design for various spaces	2	PO3
CO3	Knowledge of ventilation principles	2	PO9, PO3
CO4	Understanding properties of sound and Architectural acoustics, analyzing acoustic concepts and design, and learning how to create acoustics.	2	PO9, PO3

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.

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Building Acoustics and Noise Control Essential knowledge for acoustic design aspects of buildings	Udemy	Y	Online	Udemy, Chris Field	https://www.udemy.com/course/building-acoustics-and-noise-control/
2	Electrical Design - Building Services Electricity in Buildings, Design Calculation, Sizing, Selection and Distribution.	Udemy	Y	Online	Chakradhar Majety	https://www.udemy.com/course/electrical-design/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Ecotect	Autodesk	Commercial and Student versions
2	Revit Architecture	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
	Active Learning	5	20

In-Sem Formative	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
	Tutorial Continuous Evaluation	0	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
	Practical In-Sem	0	
	Skill In-Sem	0	
	Global Challenges - Leaderboard	0	
End-Sem Summative	End Sem Exam (Paper Based)	50	50
	Project Demonstration	0	
	Paper Presentation	0	

Building Construction-III (B.C III)

COURSE CODE	22AR3143	MODE	Basic	LTPS	0-4-0-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the construction methods of glass for doors and windows, pavilions etc. in accordance with the type of usage	2	PO1, PO2, PSO2
CO2	To understand the types of doors & windows based on type in accordance with the material like steel, glass, PVC & UPVC	2	PO1, PO2, PSO2
CO3	To understand the steel structures, their components, members like tension and compression members, sections, plates, sheets and their erection & jointing methods	2	PO1, PO2, PSO2
CO4	Clear understanding of paneling, soundproof and light weight partitions. Students should also understand the techniques of water proofing and damp proofing.	2	PO1, PO2, PSO2

Syllabus

Module 1	Glass in Buildings: Glass: Classification of glass, types of glass, physical properties and uses of glass, special varieties of glass and Architectural glass. Construction methods using glass for single story glass structures like pavilions, green houses, staircases. Construction methods using glass for single/multi-story buildings including curtain walling details – Exercises of the above through case studies and drawings.
Module 2	Doors Windows and Ventilators: Types of doors based on the make (battened, ledged, braced, flush, paneled, framed etc.) usage (pivoted, single leaf, double leaf, revolving, swing, rolling shutter, safety doors, collapsible, etc.), hardware fixtures, joinery, door-fixing details, and types of materials used in doors (wood, metal, glass, aluminum, CPVC & PVC). Types of windows based on the make (sliding, pivot, casement, louvered, fixed, bay window, etc.) and material (wood, steel, glass, and aluminum) hardware fixtures, joinery, window fixing details.
Module 3	Steel Structures: Introduction to Steel structures: Steel structural shapes, Introduction to IS 800; Rivets, Design of steel structural members, tension, compression and bending Members. Concepts of connections, design of riveted and welded connections like beam end connections. Design of Steel Beams and Columns, Concepts of plate girders. Design of laterally supported and unsupported beams. Beams subjected to bi- axial bending, built-up beams - design concepts with flanged plates. Theory of columns, slenderness ratio, design of axially loaded steel columns, design of built- up lacing and battened columns.
Module 4	Partitions and False Ceiling: Introduction, requirement of partition, types of partitions (viz. Brick, clay, concrete, glass, timber, gypsum etc.) Various types of paneling (glazed, wooden etc.), details for paneling, soundproof and lightweight partitions. Water Proofing and Damp Proofing Causes and defects of dampness,

	<p>methods adopted for waterproofing and damp proofing at different levels of a building, admixtures, and different materials (rigid, flexible) used in the process. Damp proofing: Hot applied and cold applied – Emulsified asphalt, Bentonite clay. Butyl rubber, silicones, Vinyl’s, Epoxy resins and metallic water proofing materials, their properties and uses. Waterproofing: water proofing membranes such as rag, asbestos, glass felt, plastic and synthetic rubber-vinyl, butyl rubber, neoprene, polyvinyl chloride – prefabricated membranes sheet lead, asphalt their properties and uses. Application: application of the above in basement floor, swimming pool, and terraces.</p>
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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 Willey & Sons	2008

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AutoCAD	Autodesk	Student version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	
	Home assignments	10	
	Practical continuous evaluation	5	
	Attendance	5	25
In-Sem Summative	Practical in Sem	25	25
End-Sem Summative			
	Lab end Sem examination	50	50

Building Services III (HVAC and fire safety) (BS III)

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

CO#	CO Description	BTL	PO Mapping
CO1	An understanding of the Thermal Properties of the building material and components and mechanical ventilation	2	PO1, PSO1
CO2	To understand the principles, systems, and design criteria of HVAC.	2	PO1, PSO1
CO3	To gain knowledge about fire safety norms in the buildings.	2	PO1, PSO1
CO4	To understand the mechanical transportation systems in buildings	3	PO1, PSO1

Syllabus

Module 1	Thermal Properties of the building material and Components and mechanical ventilation: Behavior 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

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Certification in construction technology	Institute of Real Estate and Finance	Y	Online	IREF (Global Management School)	https://irefglobal.com/courses/certification-in-construction-technology/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	STAAD- PRO	Benteley	Commercial and Student versions
2	Revit Architecture	Autodesk	Commercial and Student versions

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Learning	5	20
	Home Assignment	5	
	Quiz	5	
	Article Writing	5	
In-Sem Summative	In-Sem 1 (Paper Based)	15	30
	In-Sem-2 (Paper Based)	15	
End-Sem Summative	End Sem Exam (Paper Based)	50	50

Building construction-IV (B.C IV)

COURSE CODE	22AR3246	MODE		LTPS	0-4-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding of Cement and Concrete properties	2	PO6, PO7, PO8
CO2	Understanding of Special concrete and Concreting methods.	2	PO6, PO7, PO8
CO3	Understanding of the Reinforced Cement Concrete Construction	2	PO7, PO8
CO4	Understanding of Advanced Application Reinforced Cement Concrete Construction.	2	PO4, PO7, PO8

Syllabus

Module 1	Cement & concrete; Cement: Composition of cement, properties of cement, various kinds of cement and their uses. Concrete: proportioning concrete, grading of aggregates, water cement ratio, workability of concrete Estimating yield concreting. Concreting: form work for concreting, mixing, transporting, and placing, consolidating, and curing of concrete. various types of cement concrete, the properties and uses.
Module 2	Special Concrete and Concreting Method: High density, fiber Reinforced, polymer concrete – properties & uses. Ready mixed concrete – guniting –cold weather & underwater concreting – Lightweight concrete construction – Composition of lightweight concrete & its advantages – its application in building walls, roof, foundations & ornamental work.
Module 3	Concrete Construction: Introduction to RCC framed structures concrete in foundation: types of footing – Isolated, combined, continuous, strip raft & piles. Concrete slabs: one-way two way continuous & cantilever. Concrete beams: singly reinforced, doubly reinforced, cantilever & continuous beams. Concrete columns, floors, walls, partitions, lintels, arches, sunshades.
Module 4	RCC in building components: (foundation, columns, beams, slabs & walls) Typical details for RCC footing, pile foundation - precast pile, cast in situ piles, types of piles, method of driving piles, walls, column, beams, lintels, sunshades, floor, and roof slabs (1- & 2-way slabs) cantilever. Concepts & Design of different types of staircases. Introduction to prefabricated Concrete elements, and pre & post stressed concrete and their applications.:

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
4	Pamphlet and Manuals supplied or published by Pamphlet and Manuals supplied or published by SERC, BMPTC, HUDCO and Other research organization.		SERC, BMPTC, HUDCO and Other research organization.	

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Autocad	Autodesk	Student version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	25
	Home assignments	10	
	Practical continuous evaluation	5	
	Attendance	5	
In-Sem Summative	Practical in Sem	25	25
End-Sem Summative	Lab end Sem examination	50	50

Building Services – IV (Building Automation) (BS-IV)

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

CO#	CO Description	BTL	PO Mapping
CO1	To understand the philosophy of building automation systems and subsystems	1	PO7
CO2	To learn about the communication and security systems	2	PO8
CO3	To learn about the integration of building services into architectural design	2	PO8
CO4	To learn about the Interaction and integration between building structure, systems, services, management, control, and information technology.	2	PO8, 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,
4	Integrating Security into Intelligent Buildings,	P. Manolescue,	2003	Cheltenham
5	Smart Building in a Changing Climate,	A. Dobbelsteen,	2009	Techne Press,.

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Industrial IoT Markets and Security	UNIVERSITY OF COLORADO BOULDER			COURSERA	https://www.coursera.org/learn/industrial-iot-markets-security

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	Attendance	5	
	Home Assignment and Textbook	5	
In-Sem Summative	Semester in Exam-I	10	30
	Surpize Quiz	10	
	Semester in Exam II	10	
End-Sem Summative			
	End Semester Exam	50	50

Working Drawings-I (W D-I)

COURSE CODE	22AR4148	MODE	Basic	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To introduce Working drawings and their significance in the construction of buildings.	2	PO1, PO7
CO2	To teach students the essential components of working drawings, notations, drawing standards,	2	PO4, PO7
CO3	To strengthen the students' knowledge about preparing working drawings for various building elements.	3	PO6, PO8
CO4	To Improve the construction details knowledge	5	PO9, PO10

Syllabus

Module 1	Fundamentals of Research Introduction to research, types of research, research methods: qualitative, quantitative, and mixed measures Elements of research, research methodology, characteristics of good research, selection of appropriate research design, planning the research: problem statement, literature review, critical thinking, types of hypotheses, types of samples, methods of data collection, data analysis, research proposal preparation
Module 2	Quantitative Research in Architectural Design Development Data collection, tools of data collection, Types of research survey, questionnaires Introduction to Statistical analysis of data and graphical representation. Statistical theories: regression analysis, factor analysis and multivariate analysis
Module 3	Qualitative Research in Architectural Design Development Interviews in research, observation, physical traces, archival research Case studies in architectural research Applied research in architectural design.
Module 4	Report Writing and Presentation Introduction to report and research paper writing-components of research paper and research report Introduction to different styles of referencing - Harvard and Chicago styles Presentation techniques: oral presentation, layout, printing process, internet, overhead, power point.

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

Sl No	Title	Author(s)	Publisher	Year
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

Global Certifications:

Mapped Global Certifications:						
S I N O	Title	Certification Provider	Proc tore d (Y/N)	Forma t of the Exam	Exa m Prov ider	URL of the Certification
1	The Ultimate Design and Working Drawing Class in AutoCAD	Udemy		Online	Udemy	https://www.udemy.com/course/complete-course-on-architectural-working-drawings/#instructor-1

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Auto Cad	Autodesk	Student Version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	
	Continuous Evaluation - Lab Exercise	20	
			25
In-Sem Summative	Lab In Semester Exam	25	25
			50
End-Sem Summative	Lab End Semester Exam	50	50

Working Drawing - II (W D-II)

COURSE CODE	22AR4251	MODE	Basics	LTPS	0-0-4-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To train the students to prepare detailed Working drawings for effective execution at construction site.	2	PO7, PO8
CO2	To teach students the essential components of working drawings, notations, drawing standards,	2	PO3, PO9
CO3	To preparation of integrated services drawings and detailing for varioustypes of drawings and methods of transmittals and record keeping.	3	PO6, PO8 PO7
CO4	To update the latest materials knowledge with specifications	5	PO10

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.
Module 2	Integration with schedule of joinery, schedule of hardware, finishing materials, method of dimensioning, appropriate section line markings.
Module 3	Developing elevations, sections, part sections, wall sections integrated with finishing materials, etc.Construction details for lifts, dumb waiters, escalators, travelators.
Module 4	External Plumbing Layout and details. 6. Details of Septic tank. An overview of “all service systems integrated drawings” and the effectiveness of “Building Information modeling – BIM” to achieve thesame. “Working drawing titles”, drawing documentation/record keeping, drawing transmittals, revisionupdating / 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: Archiworld Co.	2010

Sl No	Title	Author(s)	Publisher	Year
4	Details in Architecture: Vol. I-V.	Joe, B. (Ed).	Victoria: The Images Publishing group.	2002
5	The professional practice of architectural working drawings. 4th Ed.	Osamu, A. W., Linde, R. M. and Bakhom, N. R.	Hoboken: John Wiley & Sons.	2011
6	Plans Sections Elevations – Key buildings of the twentieth century.	Weston, R.	London: Laurence King Publishing.	2004

Global Certifications:

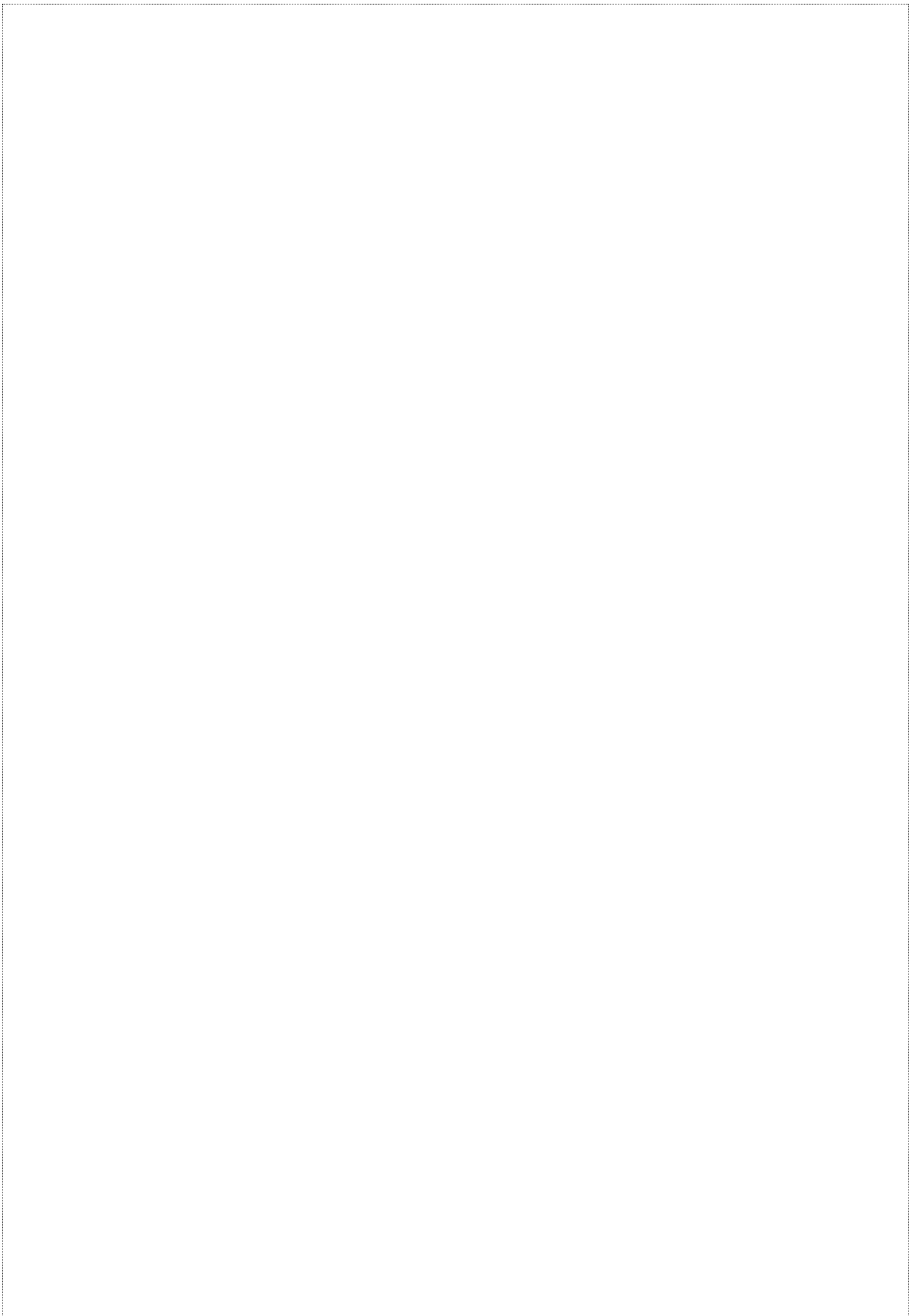
Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Revit Structure Beginners to Advanced (Contractor Services)	Udemy		Online	Udemy	https://www.udemy.com/course/revit-structure-beginners-to-advanced-contractor-services/
2	A Complete BIM Course with Revit, Dynamo and Navisworks	Udemy		Online	Udemy	https://www.udemy.com/course/revit-bim-course-with-dynamo-and-navisworks/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	BIM- Building Automation & Modelling	Autodesk	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	
	Continuous Evaluation - Lab Exercise	20	
			25
In-Sem Summative	Lab In Semester Exam	25	25
			50
End-Sem Summative	Lab End Semester Exam	50	50



Project Courses (PRI)

Architectural Design Studio - I (Basic Design)

COURSE CODE	22AR1153	MODE		LTPS	0-8-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	An understanding of the qualities of different elements as well as their composite fusions	2	PO1, PO3, PS02
CO2	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, PO5, PS02
CO3	Development of required skills – observation / analysis / abstractions / interpretation / representations / expressions through models and drawings.	2	PO3, PO4, PS02
CO4	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	PO3, PO4, 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
Module 2	Understanding Architectural Aesthetics. Principles such as Balance, Symmetry, Asymmetry, Proportion, Scale, Harmony, Rhythm and Contrast. Exercises on Visual Composition and Patternmaking, Logo design, Collage, Abstraction. Composition using different types of Grids – Orthogonal, Radial, etc.
Module 3	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.
Module 4	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.

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 schlaggerm & 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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

Architectural Design Studio -II (ADS II)

COURSE CODE	22AR1257	MODE	Basic	LTPS	0-8-0-0	PRE-REQUISITE	22AR1153
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To make student to remember anthropometric data, conduct desktop/case study and understand collected data towards framing parameters for Bedroom design.	2	PO2, PO4, PO10,PSO1
CO2	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.	6	PO2, PSO2
CO3	To make student to remember anthropometric data, conduct desktop/casestudy and understand collected data towards framing parameters for Coffee Shop design.	2	PO2, PO4, PO10, PSO1
CO4	To make student to derive concepts, schematic preliminary design, and final design presentation of a Shop front for a given context.	6	PO2, PO10, PSO2

Syllabus

Module 1	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.
Module 2	Areas of focus/ concern: 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, color, light, texture, etc., function and need: user requirements, anthropometrics, space standards, circulation image and symbolism.
Module 3	Areas of focus/ concern: 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, color, light, texture, etc., function and need: user requirements, anthropometrics, space standards, circulation image and symbolism.
Module 4	Typology/ project Small living space, i.e., bedroom, bathroom, kitchen; shop, exhibition pavilion, children's environment,snack bar, petrol bunk, fire station, Residence.

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 ofDesign,	1975

Sl No	Title	Author(s)	Publisher	Year
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 Cappleman & Michael Jack Jordon,	Van Nostrand Reinhold New York,	1993.

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	LEED AP Building Design + Construction (LEED)	GBCI			GBCI	https://www.zippia.com/architect-jobs/certifications/?survey_step=step12

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD		Students' version - open

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	25
	Continuous Evaluation Lab Exercise	20	
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

Architectural Design Studio -III (ADS III)

COURSE CODE	22AR2138	MODE	Basic	LTPS	0-8-0-0	PRE-REQUISITE	22AR1256
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand and analyze the use, the spaces, and the concepts of residential activities.	2	PO2, PO4, PO10, PSO1
CO2	To design a small-scale residential project	3	PO2, PSO1
CO3	To understand and analyze the spaces, connectivity, and the standards of Institution buildings. To design an institution-oriented building	3	PO2, PO10, PSO2
CO4	Time Problem design with minimal design agenda	3	PO2, PO10, PSO2

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.
Module 2	Scale and Complexity: Project involving organization of multiples of single unit space with predominantly horizontal movement as well as single use public buildings of small scale; passive energy
Module 3	Areas of concern/ focus: <ul style="list-style-type: none"> • form-space relationships • spatial organization • behavioral aspects, especially those relating to children. • site planning aspects • appropriate materials and construction
Module 4	Suggestive Typologies/ projects: Residential buildings, institutional buildings: nursery or primary schools, schools for children with specific disabilities, primary health center, banks, neighborhood market, neighborhood library, Gate complexes including security Kiosk and entry / exit gates, restaurant, museum/health club and small resort.

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.

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.

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	LEED AP Building Design + Construction (LEED)	GBCI			GBCI	https://www.zippia.com/architect-jobs/certifications/?survey_step=step12

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD		Students' version - open

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	25
	Continuous Evaluation Lab Exercise	20	
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

Architectural Design Studio -IV (ADS IV)

COURSE CODE	22AR2241	MODE	Basic	LTPS	0-8-0-0	PRE-REQUISITE	22AR2159
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To memorize anthropometry, circulation patterns, standards various facilities to be provided.	2	PO2, PO4, PO10, PSO1
CO2	To create and design spatial planning, circulation, and functionally. good community oriented open spaces – Project 1	5	PO2, PO4, PO9
CO3	To Create and design functional and activity-oriented community spaces- Project 2	5	PO2, PO4, PO9, PO10
CO4	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 – Project 3	5	PO2, PO4, PO9, PO10, PSO2

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>
Module 2	<p>Scale and Complexity: 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>
Module 3	<p>Area of concern/ focus:</p> <ul style="list-style-type: none"> • Rural settlements and architecture • Community oriented design • Simple public buildings (not more than Ground+ 2 floors)
Module 4	<p>Suggestive Typologies/ projects:</p> <p>Rural projects that involve studies and design at settlement and building level- noon meal centre, market, primary health Centre, department store, higher secondary school, campus students centre</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.
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.

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	LEED AP Building Design + Construction (LEED)	GBCI			GBCI	https://www.zippia.com/architect-jobs/certifications/?survey_step=step12

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD		Students' version - open

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	25
	Continuous Evaluation Lab Exercise	20	
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

Architectural Design Studio -V (ADS V)

COURSE CODE	22AR3144	MODE	Basic	LTPS	0-8-0-0	PRE-REQUISITE	22AR2261
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand and analyse the use, the spaces and the concepts of different homes for the disabled	2	PO2, PO4, PO10, PSO1
CO2	To design a Social oriented building –A Home for physically and mentally challenged- Project 1	3	PO2, PSO1
CO3	To understand and analyze the spaces, connectivity, and the standards of Institution buildings.	2	PO2, PO10, PSO2
CO4	To design an institution-oriented building – School of Architecture - Project 2 Time Problem - To design an Art center / Museum	3	PO2, PO10, PSO2

Syllabus

Module 1	<p>To explore the design of buildings addressing the socio – cultural & 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</p> <ul style="list-style-type: none"> • user perception, • crowd behaviour, • large scale movement of people • Identity of buildings. <p>Emphasizing on the importance of understanding the relationship between open space and built form, built form to built form and site planning principles involving landscaping circulation network and parking. To explore computer aided presentation techniques involving 2D and 3D drawings and models as required.</p>
Module 2	<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>
Module 3	<p>Areas of concern/ focus Behavioral 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>
Module 4	<p>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; Museum/ Art centre, educational campus, R & D centre, shopping complex.</p>

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.

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	LEED AP Building Design + Construction (LEED)	GBCI			GBCI	https://www.zippia.com/architect-jobs/certifications/?survey_step=step12

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD		Students' version - open

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	25
	Continuous Evaluation Lab Exercise	20	
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

Architectural Design Studio -VI (AD VI)

COURSE CODE	22AR3247	MODE		LTPS	0-0-12-0	PRE-REQUISITE	22AR3164
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To expose the students to the challenges of designing functionally complicated buildings, having a complex array of activities and services	2	PO2, PO4, PO10, PSO1
CO2	To Design a functionally complex Building (Medium Rise Structure) - PROJECT 1	3	PO2, PSO1
CO3	To familiarize the students to the task of coordinating integration of structural design and specialized building services in the framework of architectural design	2	PO2, PO10, PSO2
CO4	To make students understand advanced construction technology and newer building materials. To Design a functionally complex Building (High Rise Structure) - PROJECT 2	3	PO2, PO 4, PO 9, PO 10, PSO2

Syllabus

Module 1	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 (above and/or underground).
Module 2	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 & Pedastrian traffic then the site, and landscaping in tight spatial context.
Module 3	STUDIO EXERCISE 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, Museum/ Art centre, R & D centre.
Module 4	Design focuses on closed environment, with emphases on interior spaces, integration of various services, and conformance with regulatory norms. The external environment to take into consideration circulation of emergency vehicles and parking optimization.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	, "Campus design in India",	Kanvinde A.	American yearbook,	1969

Sl No	Title	Author(s)	Publisher	Year
2	The Tall Buildings Reference Book.	Parker, D. And Wood, A.	New York: Routledge.	2013
3	Guide to Natural Ventilation in High Rise Office Buildings.	Wood, A. and Ruba, S.	New York: Routledge	(2012).

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	LEED AP Building Design + Construction (LEED)	GBCI			GBCI	https://www.zippia.com/architect-jobs/certifications/?survey_step=step12

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD	Auto Desk	Students' version and commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation -Project	25	25
	Attendance	5	5
In-Sem Summative	Lab In Semester Exam	20	20
End-Sem Summative			
	Lab End Semester Exam	50	50

Architectural Design Studio -VII (AD VII)

COURSE CODE	22AR4150	MODE		LTPS	0-0-12-0	PRE-REQUISITE	22AR3267
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To memorize anthropometry, circulation patterns, importance of services and building techniques	2	PO2, PO4, PO10, PSO1
CO2	To understand and apply the integration of services into intelligent sustainable building case study	3	PO2, PO4, PO9
CO3	To Create and design spatial planning and functionality in Low. Rise – High Density Project. (Project 1)	4	PO2, PO4, PO9, PO10
CO4	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 – High Density Project. (Project 2)	6	PO2, PO4, PO9, PO10, PSO2

Syllabus

Module 1	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.
Module 2	The students are especially expected to showcase knowledge on the appropriate technology for low-cost housing, Landscape Design, Disaster Resilient Buildings and Quantity Estimation & Specifications.
Module 3	The students are expected to carry out detailed site analysis, documenting physical features, vegetation, landforms soil characteristics, slope analysis and natural drainage patterns. Site planning exercise should depict understanding of vehicular and pedestrian movement patterns, land grading and conservation of ecologically sensitive features
Module 4	They are also 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.

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 and Design, Construction and Technology	Kloft, E. and Johann, E.	Birkhauser	2003
4	Typology+: Innovative Residential Architecture	Markus, K., Rollbacher, R., Herrmann, E., Wietzorrek, U. and Ebner, P.	Birkhauser	2009

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	LEED AP Building Design + Construction (LEED)	GBCI			GBCI	https://www.zippia.com/architect-jobs/certifications/?survey_step=step12

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	AUTOCAD	Auto desk	Students' version and commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Continuous Evaluation -Project	25	25
	Attendance	5	5
In-Sem Summative	Lab In Semester Exam	20	20
End-Sem Summative			
	Lab End Semester Exam	50	50

Urban Design Studio (UDS)

COURSE CODE	22AR4253	MODE		LTPS	0-8-0-0	PRE-REQUISITE	22AR4168
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the role of Services at higher scale in Urban level	2	PO7, PO8
CO2	Understand and apply the integration of services into intelligent sustainable building case study	2	PO3, PO9
CO3	Create High Density Urban facility as a solution to the Urban areaproblems, Current issues. (Project-1)	3	PO6, PO8 PO7
CO4	Analyze the spaces, Transformation according lifestyle changes in Urban population, connectivity, and the standards of sustainable and serviceintensive building. Case study. Create design of a sustainable service integrated intelligent green building High Density Project. (Project 2)	5	PO6, PO8 PO7, PO10

Syllabus

Module 1	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.
Module 2	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 constrains associated with large-scale urban interventions.
Module 3	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.
Module 4	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 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	<i>Public Places Urban Spaces</i>	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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Revit	Autodesk	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	5
	Continuous Evaluation -Project	20	20
In-Sem Summative	Lab In Semester Exam	25	25
End-Sem Summative	Lab End Semester Exam	50	50

ARCHITECTURAL THESIS (AT)

COURSE CODE	22AR5255	MODE	Basics	LTPS	0-0-15-0	PRE-REQUISITE	22AR5172
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding the Architectural Thesis, Writing Synopsis, Studies Related to Project.	2	PO4, PO1, PO2, PO3
CO2	Literature study in relation to literatures, Desktop Studies, Case studies.	3	PO6, PO1, PO2, PO3, PO4, PO5
CO3	Site Study, Application of Data & Information Collected regarding project topic, Preliminary Drawings production.	4	PO7, PO9, PO1, PO2, PO3, PO4, PO5, PO6
CO4	Creation of final Viable drawings & Building Services, Physical & Virtual Model and Report making.	5	PO5, PO6, PO8, PO9

Syllabus

Module 1	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.
Module 2	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.
Module 3	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.
Module 4	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.

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

Sl No	Title	Author(s)	Publisher	Year
3	Climate Responsive Architecture	Arvind Krishnan & Others	TATA McGraw Hill Publishing Company Limited	2007
4	A Design Handbook for Energy Efficient Buildings	Arvind Krishnan & Others	TATA McGraw Hill Publishing Company Limited	2007
5	Architectural Research Methods	Linda Grant and David Wang	John Wiley Sons	2002

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	
	Continuous Evaluation - Project	20	
			25
	Lab in Semester Exam	25	
			25
End-Sem Summative	Exam – Viva and Report	50	50
			100

Skill Enhancement courses

Surveying and Levelling (SL)

COURSE CODE	22AR2135	MODE		LTPS	0-0-4-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding Surveying using Chain and Compass.	2	PO8, PSO1
CO2	Understanding Surveying using Dumpy Level and Theodolite.	2	PO8, PSO1
CO3	Understanding Surveying using Total Station and Alidade.	2	PO8, PSO1
CO4	Applying survey practices in field	3	PO10, PSO1

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.
Module 2	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 3	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.
Module 4	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.
3	Surface Processes and Landforms. 2nd Ed.	Easterbrook, D.J.	New York: McMillan.	(1999).

4	Hill slope Form and Process.	Carson, M. A. and Kirkby, M. J.	Cambridge University Press.	(1972).
5	Surveying Vol. 1-3. Delhi:	Arnor, K.R.	Standard Book House.	(2004).

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NIL				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NIL		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	5
	Lab Weekly exercise	20	20
In-Sem Summative			
	Lab In Semester Exam	25	25
End-Sem Summative			
	Lab End Semester Exam	50	50

Computer Studio- I (CS-I)

COURSE CODE	23AR2157	MODE	Basic	LTPS	0-0-0-4	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the basics of computer system and their supporting technologies like MS Office.	2	PO1, PO2
CO2	To create documentation reports, analysis reports, and audio-visual presentations.	2	PO1, PO2
CO3	To reciprocate the tools of 2D visualization to create architectural drawings.	2	PO1, PO2
CO4	To create layouts, plot/print to scale drawings, design and edit 2D graphic images.	2	PO1, PO2

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.
Module 2	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 3	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.
Module 4	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. 3D primitive objects: Box, Wedge, Cone, Sphere, Cylinder, Torus and Pyramids. Solid modelling: Revolve, Shell, Taper, Loft, Path extrusion and sweep.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	"The Illustrated AutoCAD 2002 Quick Reference"	Ralph Grabowski,	1 st 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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	MS Office Complete Training - Beginner to Expert Level	Udemy	-	Online	Udemy	https://www.udemy.com/course/ms-office-2010-complete-training/
2	AutoCAD Complete Course	Udemy	-	Online	Udemy	https://www.udemy.com/course/autocad-2018-getting-started-quickly-with-autocad/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Auto- Cad	Autodesk	Student Version
2	MS- PowerPoint, MS- Excel, MS- Word	MS-Office	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	
	Continuous Evaluation -Project	25	
			30
In-Sem Summative	Lab In Semester Exam	20	20
			50
End-Sem Summative	Lab End Semester Exam	50	50

Computer Studio- II (C S-II)

COURSE CODE	23AR2262	MODE	Basic	LTPS	0-0-0-4	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To learn the use of image editing software	2	PO1, PO2
CO2	To create images and animation using graphics and animation software	2	PO1, PO2
CO3	To understand, visualize the space and apply the tools of sketch up or equivalent software	2	PO1, PO2
CO4	To create a detailed 3D model by working in collaboration by application of advanced tools	2	PO1, PO2

Syllabus

Module 1	: Introduction of various software available for Architectural presentation such as Photoshop & Coral.
Module 2	Image doctoring and manipulation using computer software for graphics and animation (Photoshop and Flash).
Module 3	Building Modelling and basic rendering techniques, using 3DSMax or Sketchup or equivalent.
Module 4	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 th Edition	2016

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Graphic Design Masterclass - Learn GREAT Design	Udemy	-	Online	Udemy	https://www.udemy.com/course/graphic-design-masterclass-everything-you-need-to-know/

2	The Complete Sketchup & Vray Course for Architectural Design	Udemy	-	Online	Udemy	https://www.udemy.com/course/the-complete-sketchup-vray-course-for-exterior-design/
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Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Photoshop	Adobe	Commercial
2	Sketchup	Autodesk	Student Version

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	
	Continuous Evaluation -Project	15	
			20
In-Sem Summative	Lab In Semester Exam	30	30
			50
End-Sem Summative	Lab End Semester Exam	50	50

Computer Studio- III (C A- III)

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

CO#	CO Description	BTL	PO Mapping
CO1	To understand interface, workspace, and utilization of tools of 3D modeling software applies the required tools and components in building a 3D model.	2	PO1, PO2
CO2	To create documentation reports, analysis reports, and audiovisual presentations.	2	PO1, PO2
CO3	To understand, visualize the space and apply the tools of BIM software, identify the need of tools of BIM software.	2	PO1, PO2
CO4	To create a detailed 3D model by working in collaboration by application of advanced tools	2	PO1, PO2

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.
Module 2	Basic editing of components. Using Cross Sections Tool. Exporting 3D Model to Architectural 2D- Drawings (Plans – Elevations – Sections – Details.).
Module 3	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.
Module 4	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 th Edition	2016

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	BIM- Revit Architecture- Full Course- From Zero to Advanced	Udemy	-	Online	Udemy	https://www.udemy.com/course/bim-revit-architecture-full-course-from-zero-to-advanced/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	BIM- Building Information Modelling	Autodesk	Commercial

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Attendance	5	
	Continuous Evaluation -Project 25	25	
			30
In-Sem Summative	Lab In Semester Exam	20	20
			50
End-Sem Summative	Lab In End Semester Exam	50	50

Professional Ability Enhancement Compulsory Courses

Building Construction and Management (BCM)

COURSE CODE	22AR4226	MODE		LTPS	3-0-0-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To understand the Objectives and Methods of project Management System	2	PO3, PO7 PSO1
CO2	To understand various Tools and Techniques to facilitate efficient management of Projects	2	PO3, PO8 PSO1
CO3	To Analyze Project cost model and steps involved in cost optimization	3	PO6, PO8, PSO1
CO4	To Applying Scientific Evaluation Techniques to Manage Project Durations and resources with Examples	4	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 leveling.
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

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)	

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Project Management Professional (PMP) [®]	Project Management Institute		50 minutes, 47 questions	PMI	https://www.pmi.org/certifications/become-a-project-manager/pmi-project-management-ready

Tools used in Practical / Skill: NA

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active learning	5	20
	Home assignment	5	
	Quiz	5	
	Attendance	5	
In-Sem Summative	Sem in 1	15	30
	Sem in 2	15	
End-Sem Summative	End-Sem Exam (Paper Based)	50	50

PRACTICAL TRAINING / INTERNSHIP (PT)

COURSE CODE	22AR5154	MODE	Basics	LTPS	0-0-30-0	PRE-REQUISITE	22AR4270
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understand the preparation of professional architectural portfolio and resume	2	PO6, PO7, PO8
CO2	Apply Academic architectural skills in various projects while working in office	4	PO6, PO7, PO8
CO3	Evaluate attributes of project, based on discussions with Chief Architect and clients.	5	PO7, PO8
CO4	Site supervision during execution and coordination with the agencies involved in the construction process.	5	PO6, PO8, PO7

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.
Module 2	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 3	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.
Module 4	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			

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		NA				

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative			
	Attendance	5	
	Continuous Evaluation - Project	25	
			30
	Lab in Semester Exam	30	
			30
End-Sem Summative			
	Exam - Viva	40	40
			100

Architectural Professional Practice (P.P)

COURSE CODE	22AR5228	MODE	Basic	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	To expose students to the daily realities of an architectural practice through Practical Training	2	PO8
CO2	To facilitate an understanding of the evolution of an architectural project from design to execution.	2	PO9, PO10
CO3	To enable an orientation that would include the process of development of conceptual ideas, presentation skills.	2	PO6, PO7
CO4	Involvement in office discussions, client meetings, development of the concepts into working drawings, tendering procedure.	2	PO10

Syllabus

Module 1	Introduction: 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	Scope of Work: 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	Architect's Office: 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.
Module 4	Arbitration, Valuation and Easements Need/Scope of Arbitration, Indian Arbitration act, arbitrators, umpires, appointment, conduct, powers, duties, Sole/Joint arbitrators, Arbitration procedure, awards & impeachment. Techniques/elements of valuation, factors affecting valuation of land/building, compensation on acquisition, lease renewal/extension, standard rent, Cost of sale, Purchase & Mortgage. Easements, types, rights & features; acquisition/extinction/protection; Interim/permanent/mandatory injunctions. dilapidation, insurance, estate development. Consumer protection act.

	Architectural profession in the global market International Architectural competitions, Globalization, meaning & advantages, WTO/GATS, their relevance to architectural profession in India, Architectural practices in US, UK, Middle East & South Asian countries, Pre-requisite for Indians to work in other countries & vice versa, impact of IT
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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 guidelines.	1985

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Nil	Nil	Nil	Nil	Nil	Nil

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Nil	Nil	Nil

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	5	
	Attendance	5	
	Home Assignment and Textbook	10	
			20
In-Sem Summative	Semester in Exam-I	15	
	Semester in Exam-II	15	
			30
			50
End-Sem Summative	End Semester Exam	50	50

Humanities and Social Sciences

ENGLISH PROFICIENCY (EP)

COURSE CODE	22UC1202	MODE	R	LTPS	0-0-4-0	PRE-REQUISITE	NIL
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Understanding Language Mechanics in advanced Grammar and advanced Communicative Listening & Speaking	2	PO9,10 PSO 1
CO2	Applying the advanced Reading techniques and Advanced Techniques of Writing	3	PO9,10 PSO 1

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, intensions, and arrangements (intensions 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>
Module 3	<p>A. Paraphrasing and summarising</p> <p>B. Read and talk about memories and remembering (structures with have and get)</p> <p>C. Speculate about inventions and technology (compound adjectives)</p> <p>D. City life and urban space (reflexive and reciprocal pronouns, verbs with re-)</p> <p>E. Superstitions and rituals (passive reporting verbs)</p> <p>F. Read a review, report, and recommendation of a committee.</p>

Module 4	<p>A. Write a web forum post (expressing opinions)</p> <p>B. Write a report and travel review.</p> <p>C. Write a profile article (read an Interview of a celebrity and write an article)</p> <p>D. Write an essay: opinion essay and discussion essay.</p> <p>E. Write an application e-mail.</p> <p>F. Write promotional material using persuasive language.</p>
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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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Lingua Skills Business	Cambridge university	y	online	Cambridge university	https://www.cambridgeenglish.org/exams-and-tests/linguaskill/information-about-the-test/test-formats-and-task-types/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	padlet		Open source
2	lexipedia		Open source

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Quiz	10	
	Project continuous evaluation	10	
			20
	Sem in 1	15	

In-Sem Summative	Sem in 2	15	
			30
End-Sem Summative	Closed book/paper-based exam		50

INTEGRATED PROFESSIONAL ENGLISH(IPE)

COURSE CODE	22UC1101	MODE	R	LTPS	0-0-4-0	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	Applying Integrated Reading skills & Techniques of Writing	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 ing 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)
Module 4	A. Discuss moral dilemmas and crime (Third conditional; should have + past participle), Stressed and unstressed words; Sound and spelling B. Discuss new inventions (Relative clauses), Discuss people's lives and achievements Reported speech; Reporting verbs, verbs describing thought and knowledge. C. Express uncertainty (Linking and intrusion, Clarifying a misunderstanding) D. Speculate about the past (Past modals of deduction Adjectives with prefixes) E. Discuss life achievements (Wishes and regrets, Verbs of effort) F. Describe how you felt (Consonant clusters, describing how you felt; Interrupting and announcing news)

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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Linguaskills	Cambridge University	y	Online	Cambridge University	https://www.cambridgeenglish.org/exams-and-tests/linguaskill/

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	Padlet		OPEN SOURCE
2	Lexipedia		OPEN SOURCE

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Quiz	10	
	Project Continuous Evaluation	10	
			20
In-Sem Summative	Sem-in 1	15	
	Sem-in 2	15	
			30
End-Sem Summative	Closed Book Exam/Paper Based		50

Design Thinking and Innovation (DTI)

COURSE CODE	22UC1203	MODE	R	LTPS	0-0-4-0	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, 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> <ul style="list-style-type: none"> • Introduction to design thinking and its principles • Learning, listening, observation, dialogue, and reading in the context of design thinking. • Design definitions and stories: desirability, feasibility, viability, mystery, heuristics, algorithm, requirements, patterns, connect, blind spots. • Laws of Design Thinking: less is more, last 2% equals 200%, theory of prioritization. • Design mind: definitions, 5 forces of growth (SEPIA), 5 frictional forces (DCAFE), 3 capacity levers (VAL)
Module 2	<p>Design Thinking Process</p> <ul style="list-style-type: none"> • Overview of the design thinking process • Design thinking for contextualized problem-solving • Incorporating sustainable development goals into design thinking • Design framework (LO) • Empathy research: understanding user needs and perspectives. • Persona development: creating user profiles. • Customer journey mapping: visualizing user experiences • Define phase: asking the right questions and problem statement formulation
Module 3	<p>Ideation and Prototyping</p> <ul style="list-style-type: none"> • 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	<p>Entrepreneurial Innovation</p> <ul style="list-style-type: none"> • Introduction to innovation management

	<ul style="list-style-type: none"> • 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
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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	Tom Kelley	IDEO	2001
3	The Design Thinking <i>Play Book</i>	Michael Lewrick, Patrick Link & 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

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Certified Design Thinking Professional (CDTP)	Global innovative Institute	Y	Written	Global innovative Institute	https://www.gini.org/cdtp
2	Design Thinking for Innovation	University of Virginia	Y	Online	Coursera	https://www.coursera.org/learn/uva-darden-design-thinking-innovation
3	IBM Enterprise Design thinking	IBM	N	Online	IBM	https://www.ibm.com/design/thinking/page/courses/Practitioner

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	Active Participation (Breakout Activities)	10	50
	Continuous Evaluation Project (Work in Progress)	30	
	Quiz	10	
End-Sem Summative	SEM-End Project	50	50

Universal Human Values and Professional Ethics (UHV&PE)

COURSE CODE	22UC0010	MODE	Offline	LTPS	2-0-0-0	PRE-REQUISITE	
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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.	3	PO4
CO3	Identify and associate the holistic perception of harmony at all levels of existence.	4	PO5
CO4	Develop appropriate technologies and management patterns to create harmony in professional and personal lives.	4	PO10

Syllabus

Module 1	Introduction to Value Education: Understanding Value Education, Self-exploration as the Process for Value Education, 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.
Module 2	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, Program to Ensure Sanyam and Svasthya.
Module 3	Harmony in the Family and Society: Harmony in the Family - the Basic Unit of Human Interaction, Values in Human-to-Human Relationships, 'Trust' – the Foundational Value in Relationships, 'Respect' – as the Right Evaluation, Understand Harmony in the Society, Vision for the Universal Human Order.
Module 4	Harmony in the Nature (Existence): Understand Harmony in the Nature, Interconnectedness, Self-regulation, and Mutual Fulfillment among the Four Orders of Nature, realizing 'Existence is Co-existence' at All Levels, The Holistic Perception of Harmony in Existence.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	A FOUNDATION COURSE IN HUMAN VALUES & PROFESSIONAL ETHICS	R.R. Gaur, R. Sangal, G.P. Bagaria	Excel Books, New Delhi	1996
2	UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS	Dr. ARCHANA CHAUDHARY	Book Rivers	2001
3	UNIVERSAL HUMAN VALUES AND PROFESSIONAL ETHICS	Dr. Ritu Soryan	katson print	2001

4	HUMAN VALUES AND PROFESSIONAL ETHICS	B.S.Raghavan	S. Chand	2004
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Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1		AICTE	Yes	Online	AICTE	https://www.uhv.org.in/
2						

Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1			
2			

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALMs	10	10
	Home assignments	10	10
In-Sem Summative	Sem in 1	15	
	Sem in 2	15	30
End-Sem Summative	40	50	50

GENDER AND SOCIAL EQUALITY (GSE)

COURSE CODE	22UC0011	MODE	OFFLINE	LTPS	2-0-0-0	PRE-REQUISITE	
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Students will have developed a better understanding of important issues related to gender in contemporary India	2	PO2
CO2	Students will be sensitized to basic dimensions of the biological, sociological, psychological, and legal aspects of gender. This will be achieved through group discussions.	3	PO4
CO3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.	4	PO6
CO4	Students will acquire insight into the gendered division of labour and its relation to politics and economics.	4	PO10

Syllabus

Module 1	UNDERSTANDING GENDER: Socialization: Making Women, Making Men, Preparing for Womanhood, Growing up Male, First lessons in Caste, Different Masculinities. GENDER AND BIOLOGY: Missing Women: Sex Selection and Its Consequences, Declining Sex Ratio. Demographic Consequences. Gender Spectrum: Beyond the Binary Two or Many? Struggles with Discrimination.
Module 2	GENDER AND LABOUR: Housework: The Invisible Labor, Women's work: Its politics and Economics, Fact and Fiction. Unrecognized and Unaccounted work. Additional Reading: Wages and Conditions of Work.
Module 3	ISSUES OF VIOLENCE: Sexual Harassment: Say No! Sexual Harassment, not Eve-teasing- Coping with Everyday Harassment, Domestic Violence: Speaking Out, Is Home a Safe Place? -When Women Unite [Film]. Rebuilding Lives. Additional Reading: New Forums for Justice. Thinking about Sexual Violence.
Module 4	GENDER: CO - EXISTENCE: Just Relationships: Being Together as Equals Mary Kom and Onler. Love and Acid just do not Mix. Love Letters. Mothers and Fathers.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	A World of Equals: A Textbook on Gender	Edited by: Susie Tharu; A. Suneetha; Uma Maheswari Bhrugubanda	Orient BlackSwan	
2	Seeing Like A Feminist	Menon Nivedita, Nivedita Menon	Penguin Zubaan	
3	Gender Sensitization: Issues and Challenges	Dr Raj Pal Singh, Dr Anupama Sihag	Raj Publications	

Global Certifications:

Mapped Global Certifications:						
SI No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification
1	Global Gender Policy Certificate	The George Washington University				https://elliott.gwu.edu/global-gender-policy

Tools used in Practical / Skill:

SI No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	HOME ASSIGNMENTS	10	
In-Sem Summative	IN SEM-1	15	30
	IN SEM-2	15	
End-Sem Summative	END SEMESTER	50	50

Open Electives

Human Resource Management (HRM)

COURSE CODE	22BB21C3	MODE	OFFLINE	LTPS	3-0-0-0	PRE-REQUISITE	Nil
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Course Outcomes

CO#	CO Description	BTL	PO Mapping
CO1	Integrated perspective on role of HRM in modern business. Ability to plan human resources and implement techniques of job design	2	PO5, PO10
CO2	Competency to recruit, train, and appraise the performance of employees	2	PO5, PO10
CO3	Rational design of compensation and salary administration	2	PO5, PO10
CO4	Ability to handle employee issues and evaluate the new trends in HRM	2	PO5, PO10

Syllabus

Module 1	Introduction: Importance and Functions, Scope of HRM, Human Resource Management in a changing environment; Manpower Planning: Manpower planning process, Job Description and Job specification, Job analysis and Job design; Techniques of Job design.
Module 2	HR Processes: Employee Selection and Development - Recruitment, Selection and Induction, Training and Development, Performance Appraisal. Compensation Planning- Employee Compensation, Job evaluation, Employee Benefits and Welfare, Compensation and Salary Administration.
Module 3	Governance: Integration and Separation Employee Discipline, Suspension, Dismissal and Retrenchment; Employee Grievance Handling, Trade Unionism, Collective Bargaining, Industrial Democracy, Labour Laws.
Module 4	New Trends in HRM: HRM in India, HRM in International Firms, talent management, HR Accounting, HR Audit, HRIS.

Reference Books:

Sl No	Title	Author(s)	Publisher	Year
1	Corporate Entrepreneurship: Building the Entrepreneurial Organisation,	Paul Burns	Palgrave Macmillan.	
2	Innovation and Entrepreneurship,	Drucker F Peter,	Heinemann, London.	1985

Global Certifications:

Mapped Global Certifications:						
Sl No	Title	Certification Provider	Proctored (Y/N)	Format of the Exam	Exam Provider	URL of the Certification

1						
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Tools used in Practical / Skill:

Sl No	Tool Name	Parent Industry	Open Source/ Commercial
1	NA		

Evaluation Components:

Evaluation	Component	Weightage	Total
In-Sem Formative	ALM	10	20
	HOME ASSIGNMENTS	10	
In-Sem Summative	IN SEM-1	15	30
	IN SEM-2	15	
End-Sem Summative	END SEMESTER	50	50

