RAMAIAH
Institute of Technology

CURRICULUM

Outcome Based Education

(Effective from the Academic Year 2026- 2027)

SCHOOL OF ARCHITECTURE

VII & VIII SEMESTER B.ARCH

Batch - 2023

RAMAIAH INSTITUTE OF TECHNOLOGY
(Autonomous Institute, Affiliated to VTU)
Bangalore- 560054

CURRICULUM

About the Institute:

Dr. M. S. Ramaiah, a philanthropist, founded 'Gokula Education Foundation' in 1962 with an objective of serving the society. M S Ramaiah Institute of Technology (MSRIT) was established under the aegis of this foundation in the same year, creating a landmark in technical education in India. MSRIT offers 18 UG programs and 15 PG programs. All these programs are approved by AICTE. All eligible UG and PG programs are accredited by National Board of Accreditation (NBA). The institute is accredited with 'A + ' grade by NAAC in March 2021 for 5 years. University Grants Commission (UGC) & Visvesvaraya Technological University (VTU) have conferred Autonomous Status to MSRIT for both UG and PG Programs since 2007. The institute has also been conferred autonomous status for Ph.D. program since 2021. The institute is a participant to the Technical Education Quality Improvement Program (TEQIP), an initiative of the Government of India. The institute has 380 competent faculty out of which 70% are doctorates. Some of the distinguished features of MSRIT are: State of the art laboratories, individual computing facility for all faculty members, all research departments active with sponsored funded projects and more than 300 scholars pursuing Ph.D. To promote research culture, the institute has established Centre of Excellence for Imaging Technologies, Centre for Advanced Materials Technology, Centre for Antennas and Radio Frequency systems (CARFS), Center for Cyber Physical Systems, Schneider Centre of Excellence & Centre for Bio and Energy Materials Innovation.

The Entrepreneurship Development Cell (EDC) and "Ramaiah Evolute" have been set up on campus to incubate startups. MSRIT has a strong Placement and Training department with a committed team, a good Mentoring/Proctorial system, a fully equipped Sports department, large air-conditioned library with good collection of book volumes and subscription to International and National Journals. The Digital Library subscribes to online e-journals from Elsevier Science Direct, IEEE, Taylor & Francis, Springer Link, etc. The Institute is a member of DELNET, CMTI and VTU E-Library Consortium. The Institute has a modern auditorium, recording studio, and several hi-tech conference halls with video conferencing facilities. The institute has excellent hostel facilities for boys and girls. MSRIT Alumni have distinguished themselves by occupying high positions in India and abroad and are in touch with the institute through an active Alumni Association.

As per the National Institutional Ranking Framework (NIRF), MoE, Government of India, M S Ramaiah Institute of Technology has achieved 75th rank among 1584 top Engineering Institutions and 31st Rank among 131 Schools of Architecture in India for the year 2025

SCHOOL OF ARCHITECTURE

Established in 1992, the School of Architecture at Ramaiah Institute of Technology (RIT), Bengaluru, is committed to excellence in architectural education, design and research. The School provides a contemporary, interdisciplinary learning environment that integrates architectural design, building technology, sustainability, digital tools and professional exposure, preparing students to respond creatively and responsibly to the evolving built environment.

The School functions under Ramaiah Institute of Technology, an autonomous institution affiliated to Visvesvaraya Technological University (VTU), Belagavi. Its programmes are approved by the Council of Architecture (CoA), New Delhi, the statutory regulator for architectural education under the Architects Act, 1972. Teaching is design-led and is supported by site studies, workshops, industry interaction, research and experiential learning that develop critical thinking in architecture and allied disciplines.

Ramaiah Institute of Technology is accredited by the National Assessment and Accreditation Council (NAAC) with an A+ grade and is ranked 31st in the NIRF 2025 Architecture and Planning category.

The School offers a five-year Bachelor of Architecture (B.Arch.) programme with a sanctioned intake of 80, and two postgraduate programmes of two years' duration, Master of Architecture (Landscape Architecture) and Master of Architecture (Advanced Architecture), each with a sanctioned intake of 20. The School also offers a Ph.D. programme to support advanced research and scholarly inquiry in architecture. Together, the programmes engage with architectural design, sustainable practice, landscape and ecological systems, advanced and digital technologies, and contemporary architectural research.

The School's faculty comprises academicians, practising architects and specialists from allied disciplines. Their combined teaching, research and professional experience links theory, design and practice. Faculty support student development through mentoring, studio-based and innovative pedagogy, research projects and professional collaborations.

Students build a foundation in design thinking, technical knowledge, digital tools, sustainability, research and professional practice through studio work, hands-on learning, site exposure and interaction with practising professionals. The curriculum develops creativity, critical thinking, problem-solving and communication skills. Graduates pursue careers in architectural practice, urban design, landscape architecture, interior design, conservation, sustainable and computational design, project management, academia, research and consultancy, as well as entrepreneurship and advanced studies in India and abroad.

Through its combination of design, research and professional engagement, the School aims to develop architects and design professionals equipped to shape a responsive, resilient and future-ready built environment.

VISION OF THE INSTITUTE

To be a leading centre of architectural education that nurtures creative and critical thinkers committed to shaping sustainable, inclusive and innovative built environments.

MISSION OF THE INSTITUTE

MSRIT shall meet the global socio-economic needs through -

1. To impart design excellence by fostering creativity and critical thinking through studio-based learning supported by contemporary technology.
2. To inculcate sustainability, social responsibility, ethical values and a global outlook in the design and practice of architecture.
3. To develop professionally competent and entrepreneurial architects through interdisciplinary learning and real-world industry exposure.

QUALITY POLICY

We at MS Ramaiah Institute of Technology strive to deliver comprehensive, continually enhanced, global quality technical and management education through an established Quality Management System complemented by the synergistic interaction of the stakeholders concerned.

VISION OF THE DEPARTMENT

To be a leading centre of architectural education and innovation, addressing global challenges through interdisciplinary research, cultivating visionary designers who shape resilient, inclusive, and sustainable environments for societal wellbeing.

MISSION OF THE DEPARTMENT

- To impart design excellence by fostering creativity and critical thinking through studio-based learning supported by contemporary technology.
- To inculcate sustainability, social responsibility, ethical values and a global outlook in the design and practice of architecture.
- To develop professionally competent and entrepreneurial architects through interdisciplinary learning and real-world industry exposure.

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PROGRAM EDUCATIONAL OBJECTIVES (PEOs):

PEO1 Graduates will be able to create architecture of design excellence that is critically informed, applying emerging digital and computational technologies.

PEO2 Graduates will be able to deliver sustainable, socially responsible and ethically grounded built environments, with a global outlook rooted in the climatic and cultural context.

PEO3 Graduates will practice as competent professionals and collaborate effectively with architects and allied professionals.

PEO4 Graduates will pursue lifelong learning, research or higher studies and lead innovation and entrepreneurial ventures responsive to emerging societal needs.

KNOWLEDGE AND ATTITUDE PROFILE (WK)

WK1: A systematic, theory-based understanding of the natural sciences applicable to the discipline and awareness of relevant social sciences.

WK2: Conceptually-based mathematics, numerical analysis, data analysis, statistics and formal aspects of computer and information science to support detailed analysis and modelling applicable to the discipline.

WK3: A systematic, theory-based formulation of engineering fundamentals required in the engineering discipline.

WK4: Engineering specialist knowledge that provides theoretical frameworks and bodies of knowledge for the accepted practice areas in the engineering discipline; much is at the forefront of the discipline.

WK5: Knowledge, including efficient resource use, environmental impacts, whole-life cost, reuse of resources, net zero carbon, and similar concepts, that supports engineering design and operations in a practice area.

WK6: Knowledge of engineering practice (technology) in the practice areas in the engineering discipline.

WK7: Knowledge of the role of engineering in society and identified issues in engineering practice in the discipline, such as the professional responsibility of an engineer to public safety and sustainable development.

WK8: Engagement with selected knowledge in the current research literature of the discipline, awareness of the power of critical thinking and creative approaches to evaluate emerging issues.

WK9: Ethics, inclusive behaviour and conduct. Knowledge of professional ethics, responsibilities, and norms of engineering practice. Awareness of the need for diversity by reason of ethnicity, gender, age, physical ability etc. with mutual understanding and respect, and of inclusive attitudes

PROGRAM OUTCOMES (POs):

On completion of 5 year B.Arch. Degree program, Bachelor of Architecture graduates will be able to:

PO1: Ability to create architectural designs that satisfy both aesthetic and technical requirements.

PO2: Adequate knowledge of the histories and theories of architecture and the related arts, technologies and human sciences.

PO3: Knowledge of the fine arts as an influence on the quality of architectural design.

PO4: Adequate knowledge of urban design, planning and the skills involved in the planning process.

PO5: Understanding of the relationship between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale

PO6: Understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take account of social factors.

PO7: Understanding of the methods of investigation and preparation of the brief for a design project.

PO8: Understanding of the structural design, constructional and engineering problems associated with building design.

PO9: Adequate knowledge of physical problems and technologies and the function of buildings so as to provide them with internal conditions of comfort and protection against the climate

PO10: The necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations.

PO11: Adequate knowledge of the industries, organizations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning.

PROGRAM SPECIFIC OUTCOMES (PSOs):

PSO1: Apply interdisciplinary knowledge of art, science, materials, and environmental technologies to design and develop architectural projects that are sustainable, context-sensitive, and aligned with ecological and functional needs.

PSO2: Identify, formulate, and address complex challenges in the industrial and service sector through sustainable design strategies, while critically evaluating their societal, cultural, and global impacts.

PSO3: Demonstrate ethical and professional responsibility in leading sustainable project planning and construction management, using innovative tools and technologies to realize inclusive, resilient, and low-impact built environment

Semester-wise Credit Breakdown for B.ARCH. Degree Curriculum Batch 2026-31

(As per Council of Architecture)

Semester / Course category	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eight	Ninth	Tenth	Total
PROFESSIONAL CORE COURSE (PC)	13	13	13	10	10	12	10	11	20	-	112
BUILDING SCIENCE & APPLIED ENGINEERING (BS & AE)	7	7	10	13	10	10	4	4	-	-	65
PROFESSIONAL ELECTIVES (PE)	2	4	1	-	4	2	6	3	3	-	25
OPEN ELECTIVES (OE)	1	-	-	1	2	-	-	2	-	-	6
PROJECT/SEMINAR/ INTERNSHIP (PAECC)	-	-	-	-	-	2	6	6	3	26	43
SKILL ENHANCEMENT COURSE (SEC)	3	2	2	2	-	-	-	-	-	-	9
TOTAL	26	26	26	26	26	26	26	26	26	26	260

Note: The Bachelor of Architecture (B.Arch) programme comprises a total of 260 credits and is structured in accordance with the curriculum framework prescribed by the Council of Architecture (CoA) under the *Minimum Standards of Architectural Education Regulations, 2020*. Each on-campus semester shall be of 15 weeks' duration, during which the prescribed course content shall be completed. The total credits shall be distributed across the prescribed course categories to ensure a balanced, comprehensive, and progressive architectural education.

The course categories prescribed by the Council of Architecture, along with their respective aims, are as follows:

1. **Professional Core Courses**: These courses establish the essential knowledge base and competencies required for architectural education and practice. They develop students' abilities in design thinking, spatial planning, architectural representation, historical and theoretical understanding, and the integration of functional, aesthetic, and contextual considerations. These include Architectural Design, Basic Design, Architectural Graphics, History of Architecture, and Theory of Architecture.
2. **Building Sciences and Applied Engineering (BS & AE)**: These courses provide the scientific, technical, and engineering knowledge that informs and supports architectural design. They develop students' understanding of building materials and construction, structural systems, building services, environmental conditions, building performance, and construction technologies, enabling the integration of technical, functional, and environmental considerations into architectural practice.
3. **Elective Courses (PE / OE):** These courses provide opportunities for students to broaden their knowledge, explore specialised areas, and pursue individual interests beyond the prescribed core curriculum.Elective courses are classified into two :

- **Professional Electives (PE):** courses which offer specialised, advanced, or supportive knowledge within the discipline of architecture.
- **Open Electives (OE):** courses that facilitate interdisciplinary learning and the development of additional knowledge, proficiencies, and skills from other disciplines or domains.

4. **Employability Enhancement Courses (EEC)**: These courses develop the professional competencies, practical skills, and additional capabilities required for career readiness and lifelong learning. They are classified into:

- **Professional Ability Enhancement Compulsory Courses (PAECC):** which develop essential competencies

considered necessary for professional and career development.

- **Skill Enhancement Courses (SEC):** which focus on developing specific technical, professional, digital, communication, or other relevant skills that enhance employability and professional effectiveness

Course Evaluation and Assessment Pattern

The course categories define the intended learning focus and competencies of the B.Arch. programme. The assessment of individual courses shall be determined by the nature of the course, its prescribed Course Outcomes (COs), learning activities, and requirements specified in the curriculum.

Accordingly, courses across the prescribed categories shall be evaluated through Continuous Internal Evaluation (CIE), Semester End Examination (SEE), Term Work, or Viva Voce, as applicable to the respective course structure.

Internal assessment may comprise tests, assignments, seminar presentations, reports, discussions, sketches, models, documentation, and other assessment components, as applicable to the course and in accordance with the requirements prescribed by the Council of Architecture (CoA). Courses involving substantial practical, design, or application-oriented work may be assessed through Term Work or Viva Voce, while theory-oriented courses may be assessed through CIE and SEE. The applicable assessment components, maximum marks, and weightages shall be specified for each course.

The evaluation pattern shall be as follows:

1. Continuous Internal Evaluation (CIE): CIE shall be evaluated for 50 marks, comprising internal tests (30 marks) and other assessment components (20 marks).Two internal tests shall be conducted during the semester. Each internal test shall consist of three questions, of which students shall answer any two full questions. Each question shall address the Course Outcomes (COs) prescribed for the respective test. The average of the two internal tests shall be considered for awarding 30 marks. The remaining 20 marks shall be assessed through other components as decided by the course instructor.

2. Semester End Examination (SEE): The SEE shall be conducted for 100 marks and scaled down to 50 marks. The question

paper shall consist of ten questions with internal choice, comprising two questions per unit. Students shall answer any five full questions, selecting at least one question from each unit.

3. Term Work: Term Work shall be evaluated for 50 marks by a panel of one external examiner and one internal examiner in the absence of students. The assessment shall be based on the quality, completeness, technical accuracy, and overall standard of the submitted work. Depending on the course requirements, the evaluation may include assignments, drawings, reports, models and other prescribed deliverables as applicable to the course.

4. Viva Voce: Viva Voce shall be conducted for 50 marks by a panel of one external examiner and one internal examiner except for Architectural Design Project and Practical Training for which the panel will constitute two external examiners and one internal examiners. Students shall individually present and explain their work, demonstrate their understanding of the concepts and techniques applied, and respond to questions related to their submissions and course content. The assessment shall consider conceptual understanding, practical application, achievement of the prescribed Course Outcomes (COs), and the ability to communicate and justify design decisions and technical solutions.

SCHEME OF TEACHING & EXAMINATION
VII SEMESTER B. ARCH
Batch 2023

Sl. No	Course Code	Course Title	Category	Credits				Total Contact hours per week			
				L	T	P	Total	L	T	P	S
1	AR701	Architectural Design VI	PC	0	0	7	7	0	0	7	7
2	AR702	Building Materials & Construction Technology VII	BS & AE	0	0	4	4	0	0	4	4
3	AR703	Urban & Regional Planning	PC	3	0	0	3	3	0	0	3
4	AR704	Professional Practice I	PAECC	3	0	0	3	3	0	0	3
5	AR705	Elective -1	PE	0	0	3	3	0	0	3	3
6	AR706	Interior Design	PE	0	0	3	3	0	0	3	3
7	AR707	Construction Management	PAECC	0	0	3	3	0	0	3	3
TOTAL				6	0	20	26	6	0	20	26

PC: Professional core, BS &AE: Building science and applied engineering, PAECC: Professional ability enhancement compulsory courses , PE: Professional elective,

Credit Definition:

- **1 credit = 1 hour/week of lecture (L)**
- **1 credit = 1 hour/week of tutorial (T)**
- **1 credit = 1 hours/week of practical(P)**
- **Self Learning Hours (S)**

SCHEME OF TEACHING & EXAMINATION
VIII SEMESTER B. ARCH
Batch 2023

Sl. No	Course Code	Course Title	Category	Credits				Total Contact hours per week			
				L	T	P	Total	L	T	P	S
1	AR801	Architectural Design VII	PC	0	0	9	9	0	0	9	9
2	AR802	Building Materials & Construction Technology VIII	BS & AE	0	0	4	4	0	0	4	4
3	AR803	IPR & Ethics	OE	2	0	0	2	2	0	0	2
4	AR804	Professional Practice II	PAECC	0	0	3	3	0	0	3	3
5	AR805	Elective II	PAECC	0	0	3	3	0	0	3	3
6	AR806	Sustainable Environmental Design	PE	3	0	0	3	3	0	0	3
7	AR807	Working Drawing II	PC	0	0	2	2	0	0	2	2
TOTAL				**5**	**0**	**21**	**26**	**8**	**0**	**18**	**26**

PC: Professional core, BS &AE: Building science and applied engineering, PAECC: Professional ability enhancement compulsory courses, PE: Professional elective

Credit Definition:

- **1 credit = 1 hour/week of lecture (L)**
- **1 credit = 1 hour/week of tutorial (T)**
- **1 credit = 1 hours/week of practical(P)**
- **Self Learning Hours (S)**

SEMESTER - VII

ARCHITECTURAL DESIGN VI	
Course Code: AR701	**Course Credits: 0 : 0 : 7**
Prerequisite: Nil	**Contact Hours:7x15P**
Course Coordinator:Assoc. Prof. Divya Susanna Ebin	

Course content

UNIT - I

Study and analysis of the urban context, limited to the immediate surroundings. The studies can include that of street networks, mobility, traffic, streetscape, skyline, landmarks, nodes, edges, land use, building use, age of buildings, building bye-laws, environment, stakeholder and user group engagement etc. as per relevance to the project. Assessment of urban infrastructure networks including water supply, sewerage, storm water drainage, power distribution, solid waste management and transit accessibility as inputs for large-scale architectural developments.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - II

Architectural studies linking the interdependencies of urban and architectural data and analysis for large scale architectural projects such as bus terminal, railway station, cinema complex, indoor sports complex, high density or large scale housing, multi- use urban complexes, High-rise mixed-use development, Corporate office tower/IT park, Convention and exhibition centre. Study of high-rise building typologies, vertical circulation systems, structural systems, service cores, sky lobbies, podium developments and sustainable high-rise design strategies.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - III

Development of masterplan with due consideration of the interdependency of the immediate context and the site and where multiple layers superimpose to create the masterplan. These layers may include pedestrian networks, vehicular networks, building blocks, open spaces, service networks and should be sensitive to the features of the site also. Integration of infrastructure planning including utility corridors, emergency access systems, service roads, fire tender movement, underground service networks and sustainability strategies such as rainwater harvesting, wastewater recycling and renewable energy systems.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - IV

Development of architectural blocks taking into consideration issues of architectural design such as users, activities, byelaws, organization of spaces, circulation, density, built-unbuilt spaces, services, structures, aesthetics etc. Introduction to structural systems for high-rise

and large-span buildings including RCC framed structures, shear wall systems, tube structures, diagrid systems, outrigger systems and composite structures. Coordination of architectural design with MEP (Mechanical, Electrical and Plumbing) services and service core planning. Application of AI-assisted tools for design alternatives, preliminary performance analysis, visualization, and informed design decision-making while emphasizing ethical and responsible use of AI in architectural practice

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - V

Detailing of the largest block showing schematic drawings, conceptual drawings, floor plans, elevations, sections, 3D views, etc. Introduction and basic design and planning of services like fire safety, HVAC and water system.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

Reference Books:

1. Dominic Bradbury, John Hitchcock, 'Vertical Living: Interior Experiences by Yoo'; Thames and Hudson, 2014
2. Elizabeth M. Golden, "Building from Tradition: Local Materials and Methods in Contemporary Architecture", 2018, Routledge.
3. Paola Sassi, "Strategies for sustainable Architecture", 2006, Taylor and Francis Group.
4. Lisa Iwamoto, "Digital Fabrications: Architectural and Material Techniques", 2009, Princeton Architectural Press.
5. Jesse Reiser, " Atlas of Novel Tectonics", 2006, Princeton Architectural Press.
6. Russell Fortmeyer, Charles F. Linn, " Kinetic Architecture: Designs for Active Envelopes", 2014,The Images Publishing Group.
7. Michael Fox, " Interactive Architecture: Adaptive World", 2016, Princeton Architectural Press.
8. Christopher Alexander, "A Pattern Language ", Oxford University Press, 1977.

Course Outcomes (COs):

The students will be able to –

1. Understand the importance and influence of urban studies on architectural projects (PO4, PO5, PO6, PO7, PO10, PO11, PSO1, PSO2).
2. Apply tools of data collection in the urban context (PO1, PO4, PO5, PO6, PO7, PO8, PO9, PO10, PO11, PSO1, PSO2).
3. Apply analytical skills to the study of the urban context..(PO1, PO4, PO5, PO6, PO7, PO9, PO10, PO11, PSO1, PSO2).
4. Apply architectural and urban design solutions using an inter-disciplinary perspective. (PO1, PO4, PO5, PO8, PO9, PO10, PSO1, PSO2).

5. Evaluate on selection and design of architectural projects (PO1, PO4, PO5, PO8, PO9, PO10, PSO1).

Course Assessment and Evaluation:

<table>
<tr><th colspan="4">Continuous Internal Evaluation (CIE): 50 Marks</th></tr>
<tr><th colspan="2">Assessment Tool</th><th>Marks</th><th>Course outcomes addressed</th></tr>
<tr><td colspan="2">Review-I</td><td>30</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Review-II</td><td>20</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Semester End Examination (SEE):VIVA-VOCE</td><td rowspan="3">50</td><td rowspan="3">CO1, CO2, CO3, CO4, CO5</td></tr>
<tr><td>Design/ Drawing</td><td>Viva-voce</td></tr>
<tr><td>40</td><td>10</td></tr>
</table>

Note:

- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day at the beginning of the **Viva voce exam.**

SEMESTER – VII

BUILDING MATERIALS & CONSTRUCTION TECHNOLOGY –VII	
Course Code: AR702	**Course Credits: 0 : 0 : 4**
Prerequisite: Nil	**Contact hours: 4x15P**
Course Coordinators: Assoc. Prof. Surekha R	

Course content

UNIT - I

Materials: wood and boards (plywood, MDF, particle, block boards, WPC, PVC), glass, metal, gypsum, gypsum boards, and other common interior materials, with their specifications and selection criteria. Engineered, recycled, rapidly renewable and low-emission options, and how they compare with conventional materials.

Hardware: hinges, drawer systems, locks, handles, connectors and fittings. How to specify them and read manufacturers' catalogues.

Finishes: laminates, veneers, HPL, paints and polishes, and other surface finishes, upholstery, glass, mirror, specialized materials, etc. with their durability and maintenance.

Overview of AI-enabled mass customization for personalized interior components and emerging trends in digital manufacturing for the building industry.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT - II

Modular systems: what the market offers, standard module sizes, and the human dimensions and ergonomics behind component sizes.

Dividers, cabinets, shelves and showcases: sizes, configurations, construction and detailing, material specifications, hardware used, display and lighting provisions, costs and market modular options.

Wardrobes: sizes and internal configurations, shutter types (hinged, sliding, folding), finishes, construction and detailing, material specifications, hardware used, cost, and market modular options available in the market.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT - III

Modular kitchens: layouts (such as straight, L, U, parallel and island), sizes, configurations, work-area planning, base and wall units, countertops, shutters, storage fittings, and provisions for appliances and services. Construction joinery and detailing, material specifications & hardware used, modular options available in market, finishes, costs. Recent trends in design and fabrication with modern materials.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation& Videos

UNIT - IV

Partitions: full-height and half-height partitions. Types include solid, glazed, demountable and acoustic. Framing and panel systems, junctions, openings, door integration, and size and height considerations. Construction joinery and detailing, material specifications & hardware used, modular options available in market, finishes, market cost. Newer sustainable materials for partitions.

Wall paneling: types and sizes, substructures, panel materials, fixing methods, joints and corners, acoustic and fire considerations, and newer sustainable materials. Construction joinery and detailing, material specifications & hardware used, modular options available in market, finishes, costs, newer sustainable materials for panelling

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT - V

Workstations: configurations (individual, linear, cluster, benching), sizes, ergonomics, storage, cable and power management, construction and detailing, material specifications & hardware used, finishes and cost. Modular options available in the market.

False ceilings: types and sizes, suspension and framing systems, boards and panels, and integration with lighting, air conditioning, sprinklers and other services. Construction joinery and detailing, material specifications & hardware used, finishes, costs for different types of false ceiling. Modular options available in the market.
Application by area: choosing ceiling systems for different spaces, such as residential, office, retail and assembly spaces, and in wet and high-humidity areas.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation&Videos

Reference Books:

1. Joseph DeChiara, J. Panero, M. Zelnik, ‘Time-saver Standards for Interior Design and Space Planning’; McGraw-Hill Inc., 1991.
2. Interior Details Bedroom; Interior Architecture Group, 2018.
3. Natascha Meuser, ‘Drawings for Architects: Construction and Design Manual’; DOM Publishers, 2015.
4. W. Otie Kilmer, Rosemary Kilmer, ‘Construction Drawings and Details for Interiors’; John Wiley & Sons, 2016.
5. Margaret Krohn, NKBA, ‘Kitchen & Bath Design Presentation: Drawing, Plans, Digital Rendering’; Wiley, 2014.
6. NKBA (National Kitchen and Bath Association), ‘Kitchen Planning: Guidelines, Codes, Standards’; Wiley, 2013.

7. Maureen Mitton, Courtney Nystuen, ‘Residential Interior Design: A Guide to Planning Spaces’; Wiley, 2016.

Course outcomes (COs):

The students will be able to-

1. Select interior materials, hardware and finishes based on properties, specifications, sustainability and cost. and discuss emerging digital manufacturing trends (PO8, PO19, PSO2, PSO3)
2. Synthesize design for dividers, cabinets, shelves, showcases and wardrobes considering modular design principles, ergonomic standards, material specifications, construction details, hardware selection and cost considerations. (PO1, PO5, PO8, PO10, PSO3)
3. Plan modular kitchens considering ergonomics standards, spatial planning, materials, hardware, construction methods and cost considerations. (PO1, PO5, PO8, PO10, PO11, PSO2, PSO3)
4. Design partition and wall-paneling systems based on materials, hardware, construction methods and cost considerations. (PO1, PO5, PO8, PSO2, PSO3)
5. Design workstation and false-ceiling systems based on ergonomics, materials, construction, services, and cost. (PO1, PO8, PO9, PO11, PSO1, PSO3)

Course Assessment and Evaluation:

<table>
<tr><td colspan="4">Continuous Internal Evaluation (CIE): 50 Marks</td></tr>
<tr><td colspan="2">Assessment Tool</td><td>Marks</td><td>Course outcomes addressed</td></tr>
<tr><td colspan="2">Internal Test-I</td><td>30</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Internal Test-II</td><td>30</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="4">Average of the two internal tests shall be taken for 30 marks.</td></tr>
<tr><td colspan="2">Other Components</td><td>Marks</td><td>Course outcomes attained</td></tr>
<tr><td colspan="2">Assignment-1</td><td>10</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Assignment-2</td><td>10</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Semester End Examination (SEE):VIVA-VOCE</td><td rowspan="3">50</td><td rowspan="3">CO1, CO2, CO3, CO4, CO5</td></tr>
<tr><td>Portfolio</td><td>Viva-voce</td></tr>
<tr><td>40</td><td>10</td></tr>
</table>

Note:

- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day at the beginning of the **Viva voce exam.**

SEMESTER – VII

URBAN AND REGIONAL PLANNING	
Course Code: AR703	**Course Credits: 3 : 0 : 0**
Prerequisite: Nil	**Contact Hours: 45L+45S**
Course coordinator: Prof. Dr. Jotirmay Chari	

Course content

UNIT - I

Introduction to urban and regional planning – Need for Urban and Regional Planning, Aims and Objectives of Planning, Principles of Planning, Necessity of Planning. History of Planning in India.

Pre-Independence and Post-Independence - Jaipur, Chandigarh, Gandhi Nagar, Steel towns, Cantonment Towns Bangalore, Delhi. Origin and growth of towns and cities, types of settlements, evolution of villages to cities.

Urban form based on different determinants – Natural: climate, topography, resources, geography; Manmade: cultural, economic, religious, administrative, political.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - II

Urbanization, urban area, urbanism, classification of urban systems, causes of growth and decay of cities, urban morphology.Planning efforts and impacts on historical cities – ancient civilizations, classical cities, Indian cities.

Land use Planning theories – The Burgess Urban Land Use model, Hoyt model, Harris and Ullman model, Le Corbusier.Land use classifications, CBD, slum rehabilitation.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - III

Introduction to Regional planning, Planning goals and objectives, theories by Patrick Geddes, Ebenezer Howard, Frank Lloyd Wright.Types of regions – functional, formal, perceptual.Types of planning of regions. – Structural, Regional etc.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - IV

Types of planning systems - perspective plan, development plan, local area plan, specific area plan, special purpose plan, annual plan. Population density, age-sex ratio, economic base, etc. Surveys conducted for developing the plans, contents of development plans. **Urban renewal. Scales of Planning** – Masterplan, Comprehensive Development Plan, Area Plan, Regional Plan.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - V

Principles of Neighborhood Planning, Neighbourhood Planning Theory by Perry, Clarence Stein's Radburn Planning, UDPFI guidelines.Project Work - Practical approach towards urban renewal/land use planning/neighborhood planning.Introduction on AI-supported geospatial analytics and decision-support systems applied in evidence-based planning, public participation, and sustainable urban development.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

Reference Books:

1. G K. Hiraskar, 'Fundamentals of town planning'; Dhanpat Rai Publication, 2018.
2. Rangwala, 'Town Planning'; Charotar Book Distributors, 2015 22
3. M. Pratap Rao, 'Urban Planning: Theory and Practice'; CBS, 2019.
4. Arthur Gallion, Simon Eisner, 'The urban pattern: City planning and Design'; Van Nostrand Reinhold, 1986.
5. F. Stuart Chapin III, Edward J. Kaiser, 'Urban Land Use Planning'; University of Illinois Press, 1979.
6. K. S. Rame Gowda, 'Urban and Regional Planning: Principles and Case Studies'; Prasaranga, University of Mysore, 1972
7. S. K. Kulshrestha, 'Dictionary of Urban and Regional Planning'; Kalpaz Publications, 2006.
8. S K Kulshrestha, 'Urban and Regional Planning in India: A Handbook for Professional Practice'; Sage Publications Pvt. Ltd., 2012.
9. Prasanna K Mohanty, 'Cities and Public Policy: An Urban Agenda for India'; SAGE India, 2014.
10. Amiya Kumar Das, 'Urban Planning in India'; Rawat Publications, 2007.
11. Simon Eisner, Arthur Gallion, Stanley Eisner, 'The Urban Pattern'; Wiley, 1993
12. Clara H. Greed, 'Introducing Town Planning'; Longman, 1993 13. K. C. Sivaramakrishnan, Amitabh Kundu, B. N. Singh, 'A Handbook of Urbanization in India: An Analysis of Trends and Processes'; Oxford University Press, 2007
13. Ministry of Urban Development, 'Urban and Regional Development Plans'; Government of India, 2014.
14. Formulation and Implementation Guidelines, MoUD Government of India

Course Outcomes (COs):

The students will be able to –

1. Understand the evolution of human settlements and evaluate their implications for future urban development. (PO2,PO4,PO5,PSO1,PSO2)
2. Understand the important contributions in the field of urban planning and analyse their relationships between the present and future in

Planning.(PO2,PO4,PO6,PSO2,PSO3)

3. Compare and analyse the various planning theories at regional level and evaluate how they can bring about an effective planning outcome.(PO2,PO4,PO11,PSO1,PSO2,PSO3)
4. Understand, apply and assess relevant plans making the planning process inclusive of the disadvantaged communities.(PO4,PO5,PO6,PSO1,PSO2,PSO3)
5. Assess the values for effective problem solving in the practice of planning ethical standards, values of equity, fairness, efficiency, order and beauty.(PO1,PO4,PO6,PO10,PSO2,PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks		
Assessment tool	**Marks**	**Course outcomes attained**
Internal Test-I	30	CO1, CO2, CO3
Internal Test-II	30	CO3, CO4, CO5
Average of the two internal tests shall be taken for 30 marks.		
Other Components	**Marks**	**Course outcomes attained**
Assignment-1	10	CO1, CO2, CO3
Assignment-2	10	CO3, CO4, CO5
Semester-End Examination (SEE) (Scaled to 50 Marks)	100	CO1, CO2, CO3, CO4, CO5

SEMESTER – VII

PROFESSIONAL PRACTICE -I	
Course Code: AR704	**Course Credits: 3 : 0 : 0**
Prerequisite: Nil	**Contact Hours: 45L+45S**
Course coordinator: Prof. Dr. Monalisa	

Course content

UNIT - I

Profession of architecture- Idea of Profession Idea of profession; differences between profession,trade and business; Types and extent of service offered by architects.Types of Architectural firms- Proprietorship, partnership, Associateship, and private limited firms-advantages and disadvantages of each type of firm. Office management.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - II

Duties of an architect, towards client, contractor, scale of professional charges, mode of payment. Architect's Act of 1972, Role of Council of Architecture and The Indian Institute of Architects in the functioning of the profession, Code of professional conduct.Architectural competitions -procedure and guidelines for the conduct of competitions.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT – III

Tender document and its content, Types of tenders- advantages and disadvantages of each type of tender, tender notice, various issues arising out of the tendering process, scrutiny of tender, award of tender. Architect's role in the tendering process, earnest money. Contract – general principles, types of contracts, conditions of a contract, breach of contract, duties of an architect under the contract, role of an architect in ensuring the completion of contract. Supervision and Contract management, issues arising in contract.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT – IV

Zoning Regulations and building byelaws: Introduction, Land use categories, regulations of main land use types, building byelaws applicable to cities-their necessity, various building byelaws - FAR/FSI, setbacks, garage, projections into open spaces, means of access, basement floor, parking normsNational Building Code: Importance of the NBC, stipulations with respect to fire norms in high-rise buildings.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - V

Arbitration: Need for Arbitration, modes of settlement of disputes, The Arbitration and Conciliation Act-1996- objective and salient features, procedure adopted in arbitration, arbitrator, order of reference, selection of arbitrators, powers and duties of arbitrators, arbitral award. Introduction to application of AI in architectural practice.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

Reference Books:

1. K. G. Krishnamurthy and S. V. Ravindra, 'Professional Practice'; Prentice Hall India Learning Pvt. Ltd., 2014.
2. Matt Butcher, Matt Farina; 'Go in Practice: Includes 70 Techniques'; Manning Publications, 2016 24.
3. Roshan Namavathi, 'Professional Practice'; Lakhani Book Depot, 2013.
4. Robert Greenstreet, David Chappell, Michael Dunn, 'Legal & Contractual procedures for Architects'; Architectural Press, 2003.
5. S.C.Garg, Yogesh K Garg, ' Professional Practice of Architecture'; Satya Prakashan, 2014
6. Osamu A. Wakita, Richard M. Linde, Nagy R. Bakhoum, 'The Professional Practice of Architectural Working Drawings'; John Wiley & Sons, 2011 7.
7. Frederik Ahlemann, Eric Stettiner, Marcus Messerschmidt, Christine Legner, 'Strategic Enterprise Architecture Management: Challenges, Best Practices, and Future Developments'; Springer, 2014 8.
8. James Franklin, 'Architect's Professional Practice Manual'; McGraw-Hill Education, 2000

Course Outcomes (COs):

The students will be able to –

1. Describe the architectural profession and its services, and differentiate firm types to justify a suitable practice model. (PO6, PO11, PSO3)
2. Interpret the Architects Act 1972, COA/IIA roles and the Code of Conduct, and apply them to professional duties, fees and competitions. (PO6, PO11, PSO2, PSO3)
3. Compare tender and contract types, and appraise bids to recommend award and manage contract issues. (PO6, PO11, PSO3)
4. Summarise zoning regulations, bye-laws and NBC fire norms, and use them to calculate FAR, setbacks and parking. (PO4, PO9, PO10, PO11, PSO2, PSO3)
5. Explain arbitration under the 1996 Act, and critique AI use in contracts and project administration on ethical and accountability grounds. (PO6, PO11, PSO2, PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks		
Assessment tool	**Marks**	**Course outcomes attained**
Internal Test-I	30	CO1, CO2, CO3
Internal Test-II	30	CO3, CO4, CO5
Average of the two internal tests shall be taken for 30 marks.		
Other Components	**Marks**	**Course outcomes attained**
Assignment-1	10	CO1, CO2, CO3
Assignment-2	10	CO3, CO4, CO5
Semester-End Examination (SEE) (Scaled to 50 Marks)	100	CO1, CO2, CO3, CO4, CO5

SEMESTER – VII

ELECTIVE-I	
Course Code: AR705	**Course Credits: 0 : 0 : 3**
Prerequisite: Nil	**Contact Hours: 3X15P**
Course coordinator: Asst. Prof Amala Anna Jacob	

Course content

Unit I

Introduction to areas of special interest and types of projects dealt in the same; with focus on design and issue-based approaches. The topics selected should have social relevance and contribution to the profession and practice

Suggested areas of special interest- Urban Design; Housing; Heritage Conservation of buildings; Transport Planning; Product Design; Architectural Journalism; Photography; Material Sciences; BIM, Sustainable Practices; Renovation, Extension and Refurbishment; Vernacular Architecture etc.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Unit II

Selection of an area of special interest based on contemporary issues and emerging trends in architecture and allied fields. The study shall focus on identifying specific themes, styles, approaches, challenges, or issues within the selected domain. Students shall critically evaluate the opportunities, limitations, ethical considerations, and implications of AI in the field selected.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Unit III

Students shall explore a specific area within the selected topic of interest, focusing on its complexities, and challenges. Case studies shall be conducted, and relevant data shall be collected from existing projects related to the chosen field

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Unit IV

Synthesis and interpretation of data collected through case studies and analytical studies. Students shall organize and communicate their findings through appropriate representation methods.Based on the selected area of interest, students may prepare: Study models/ Documentation sheets/Analytical drawings/Catalogues/Research summaries/Visual presentations/Comparative studies /Design explorations or conceptual proposals

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Unit V

Final presentation,preparation of study models or report.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Reference books:

1. Atul Deulgaonkar, ‘Laurie Baker: Truth in Architecture’; Jyotsna Prakashan, 2015.
2. Simon Unwin, ‘Analysing Architecture’; Routledge, 2009.
3. Joseph De Chiara, Michael J. Crosbie, ‘Time Saver Standards for Building Types’; McGraw Hill Education, 2017.
4. Donald Watson, Michael Crosbie, John Callender, ‘Time Saver Standards for Architectural Design Data’; McGraw-Hill Education, 1997.
5. Ernst Neufert, ‘Architects' Data’; Wiley-Blackwell, 2019.
6. David Bergman, ‘Sustainable Design: A Critical Guide’; Princeton Architectural 26 Press, 2012.
7. Elizabeth A. T. Smith, Peter Gossel, ‘Case Study Houses’; Taschen GmbH, 2009.
8. Peter Blundell Jones, Eamonn Canniffe, ‘Modern Architecture Through Case. Studies 1945 to 1990’; Architectural Press, 2007.
9. Analyzing Architecture Case Studies for Beginners- RIBA.
10. National building code of India, Bureau of Standards.
11. Building Byelaws and Zonal regulations.

Course outcomes (COs):

The students will be able to –

1. Identify their areas or domains of special interest. (PO1, PO2, PO4, PO5, PO6, PO8, PO9, PO10, PO11, PSO1, PSO2, PSO3)
2. Compare and contrast areas of special interest and select a topic of interest. (PO1, PO2, PO4, PO5, PO6, PO8, PO9, PO10, PO11, PSO1, PSO2, PSO3)
3. Describe data from domain area or area of special interest. (PO1, PO2, PO4, PO5, PO6, PO8, PO9, PO10, PO11, PSO1, PSO2, PSO3)
4. Apply domain knowledge to data and infer conclusions in the form of diagrams, models, simulations etc. (PO1, PO2, PO4, PO5, PO6, PO8, PO9, PO10, PO11, PSO1, PSO2, PSO3)
5. Analyze domain specific knowledge and demonstrate chosen subject knowledge through experimental models or in a collated portfolio.(PO1, PO2, PO4, PO5, PO6, PO8, PO9, PO10, PO11, PSO1, PSO2, PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks			
Assessment tool		**Marks**	**Course outcomes attained**
Assignment-1		30	CO1, CO2, CO3
Assignment-2		20	CO3, CO4, CO5
Semester-End Examination (SEE) (Term Work)		**Marks**	**Course outcomes attained**
Portfolio (40)	**Model / Report/ Catalogue (10)**	50	CO1, CO2, CO3, CO4, CO5

Note:

- For all Term work examinations, one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day of **Term work exams.**

SEMESTER – VII

INTERIOR DESIGN	
Course Code: AR706	**Course Credits: 0 : 0 : 3**
Prerequisite: Nil	**Contact Hours: 3X15P**
Course coordinator: Assoc. Prof. Dr. Lavanya Vikram	

Note: The portfolio and material study shall be submitted at the end of the semester as mandatory components of the final assessment and evaluation.

Course content

UNIT - I

Case studies of Interior projects.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - II

Activity analysis, anthropometrics, application of scale and proportion.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - III

Effects of enclosure, psychological effects of space.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - IV

Elements of an interior space including furniture placement and layout, surface treatment and interior landscape.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT – V

Material and construction details. Services in interiors including design for comfort-climatic, air conditioning, natural, artificial lighting, acoustics, etc.Overview of sensor-based intelligent interiors and human-centric design approaches that enhance user well-being, energy efficiency, accessibility, and operational performance.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

Reference Books:

1. Kim Kuhteubl, ‘Branding + Interior Design: Visibility and Business Strategy for Interior Designers’; Schiffer Publishing Ltd., 2016.
2. Aparna Gwande, ‘Designs from Indian Textiles: Chintz – Kalamkari’; StoryMirror Infotech Pvt Ltd, 2017.
3. Joseph De Chiara, Michael J. Crosbie, ‘Time Saver Standards for Building Types’; McGraw Hill Education, 2017 28.
4. Donald Watson, Michael Crosbie, John Callender, ‘Time Saver Standards for

Architectural Design Data'; McGraw-Hill Education, 1997.
5. Ernst Neufert, 'Architects' Data'; Wiley-Blackwell, 2019.
6. Erin Gates, 'Elements of Style: Designing a Home & a Life'; Simon & Schuster, 2014.
7. Lauren Liess, 'Habitat: The Field Guide to Decorating'; Harry N. Abrams, 2015.
8. Justina Blakeney, 'The New Bohemians: Cool and Collected Homes'; Harry N. Abrams, 2015.
9. Kate Watson-Smyth, 'Mad about the House: How to Decorate Your Home with Style'; Pavilion, 2018.
10. John F Pile, 'Interior Design'; Pearson, 2007.
11. Francis D K Ching, 'Interior Design Illustrated'; John Wiley & Sons, 2012.
12. Julius Panero & Martin, 'Human Dimension and Interior Space: A Source Book of Design'; McGraw-Hill Professional, 2001.
13. Maureen Mitton, 'Interior Design Visual Presentation: A Guide to Graphics, Models and Presentation Techniques'; John Wiley & Sons, 2012.
14. John F Pile, 'A History of Interior Design'; John Wiley & Sons Inc, 2000.
15. John Curtich and Garret Eakin, 'Interior Architecture'; John Wiley & Sons, 1995.

Course outcomes (COs):

The students will be able to -

1. Understand and observe the design from built interior spaces. (PO1, PO2, PO3, PO5, PO7; PSO1, PSO2)
2. Apply and demonstrate spaces of interaction between humans and objects in an interior space to integrate design with the practical aspect of able space. (PO1, PO3, PO5, PO10; PSO1)
3. Analyze the effect of interior spaces on behavioural aspects of a user. (PO1, PO3, PO5; PSO1, PSO2)
4. .Evaluate interior design projects and draft the required drawings to execute the project on site. (PO1, PO3, PO5, PO10; PSO1, PSO2)
5. Create integrated interior design solutions incorporating various building services and innovative construction details. (PO1, PO7, PO8, PO9, PO10, PO11; PSO1, PSO2, PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks		
Assessment tool	**Marks**	**Course outcomes attained**
Assignment-1	30	CO1, CO2, CO3
Assignment-2	20	CO3, CO4, CO5
Semester-End Examination (SEE) (Term Work)	**Marks**	**Course outcomes attained**

Portfolio (40)	**Material Study (10)**	50	CO1, CO2, CO3, CO4, CO5

Note:

- For all Term Work one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day of **Term work exams.**

SEMESTER – VII

CONSTRUCTION MANAGEMENT	
Course Code: AR707	**Course Credits: 0 : 0 : 3**
Prerequisite: Nil	**Contact Hours: 3X15 P**
Course coordinator: Asst. Prof Megha Ann Jose	

Course Content

UNIT - I

Construction Management and Planning:Basic concepts in the development of construction plan – Choice of technology and construction method – Defining work tasks – Definition precedence relationships among activities – Estimating activity duration – Estimating resource requirements for work activities.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - II

Construction Management Techniques: Construction planning, scheduling, and controlling phases- use of management techniques- bar chart, milestone chart

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - III

Network Analysis: Introduction – Advantages of network analysis – Activity and Event oriented network – calculation of critical path scheduling – Comparison between PERT and CPM- Activity float and schedules – Crashing and time cost tradeoffs – Improving the scheduling process, problems.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - IV

Machinery for building works: Introduction – necessity to mechanize, options of procuring equipment, selection of equipment, concept, standard equipment, construction equipment deployed in large scale building works, construction equipment and their operational use.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - V

Cost Effectiveness: Introduction- role of client, contactor, consultant, architect, and engineers. System improvement to achieve cost effectiveness. Introduction to AI dashboards for project monitoring, data-driven management and decision support in construction. and ethical use of AI in construction projects.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

References:

1. M.R. Sharma, 'Fundamentals of Construction Planning & Management'; S.K. Kataria & Sons, 2013.
2. P.N. Modi, Sanjeev Modi, Rajeev Modi, 'PERT AND CPM (Program Evolution and Review Technique and Critical Path Method)'; Standard Book House, 2017.
3. Calin M. Popescu, Chotchai Charoenngam, 'Project Planning, Scheduling, and Control in Construction: An Encyclopedia of Terms and Applications'; Wiley 1995.
4. Prasanna Chandra, 'Projects: Planning'; McGraw Hill, 2009.
5. Sharma J.C., 'Construction Management and Accounts'; Sathya Prakashan, 2006.
6. Robert Peurifoy, Clifford Schexnayder, Aviad Shapira, Robert Schmitt, 'Construction Planning, Equipment and Methods'; McGraw-Hill Education, 2010.
7. S. P. Mukhopadhyay, 'Project Management for Architects and Civil Engineers'; IIT Kharagpur; 1974.
8. K G Krishnamurthy, S V Ravindra, 'Construction and Project Management'; CBS Publishers, 2017.
9. P.L. Meiyappan, 'Construction Management'; Pradeepa Publications, 2010.
10. B.C. Punmia, K.K. Khandelwal, 'Project Planning and Control with PERT and CPM'; Laxmi Publications, 2016.
11. B. Sengupta and H. Guha, 'Construction Management and Planning'; McGraw Hill Education, 1995.
12. S. K. Bhattacharjee, 'Fundamentals of PERT/CPM & Project Management'; Khanna Publishers, 1996.
13. Jerome D. Wiest and Ferdinand K. Levy, 'A Management Guide to PERT/ CPM'; Prentice Hall, 1969.
14. R.A. Burgess, G. White, 'Building Production and Project Management'; The Construction Press, 1979.
15. K. G., Krishnamurthy, S. V. Ravindra, 'Construction and Project management for Engineers, Architects, Planners and Builders; CBS Publishers.

Course outcomes (COs):

The students will be able to –

1. Understand the principles and processes involved in managing building and construction projects.(PO2, PO6, PO8, PO10, PO11; PSO3)
2. Understand & Apply different construction management techniques like bar charts and milestone charts.(PO2, PO8, PO9, PO10, PO11; PSO3)
3. Understand & Analyze construction project networks using PERT and CPM for effective project planning and control.(PO10, PO11;PSO3)
4. Analyze and identify appropriate construction equipment based on project requirements, scale and operational applications. (PO8, PO10; PSO2, PSO3)
5. Identify & Outline the roles of various stakeholders in achieving cost effectiveness,

and understand the role of AI in construction projects. (PO6, PO8, PO9, PO10, PO11; PSO3)

Course Assessment and Evaluation:

<table>
<tr><td colspan="3">Continuous Internal Evaluation (CIE): 50 Marks</td></tr>
<tr><td colspan="2">Assessment tool</td><td>Marks</td><td>Course outcomes attained</td></tr>
<tr><td colspan="2">Internal Test-I</td><td>30</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Internal Test-II</td><td>30</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="4">Average of the two internal tests shall be taken for 30 marks.</td></tr>
<tr><td colspan="2">Other Components</td><td>Marks</td><td>Course outcomes attained</td></tr>
<tr><td colspan="2">Assignment-1</td><td>10</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Assignment-2</td><td>10</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="2">Semester-End Examination (SEE)
(Term Work)</td><td rowspan="3">50</td><td rowspan="3">CO1, CO2, CO3, CO4, CO5</td></tr>
<tr><td>Case study Report</td><td>Sheet Submission</td></tr>
<tr><td>40</td><td>10</td></tr>
</table>

Note:.

- For all Term Work one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day of **Term work exams.**

SEMESTER – VIII

ARCHITECTURAL DESIGN VII	
Course Code: AR801	**Course Credits: 0 : 0 : 9**
Prerequisite: Nil	**Contact Hours: 9x15P**
Course Coordinator:Asst. Prof Amala Anna Jacob	

Course content

UNIT - I

Introduction to key concepts and theories to lay the foundation of urban studies and the study of the public realm. Case studies to understand design parameters within the city. Introduction to urban regeneration, mixed-use development, Transit-Oriented Development (TOD), place-making, and sustainable urbanism as contemporary approaches to city development.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - II

Planning and understanding of macro, micro and site level context.

Study of the urban and larger city context which may include the study of city history, urban morphology -street networks, landuse, building use, density, environment, topography, townscape, built form characteristics, byelaws, socio-cultural context, political and economic contexts, technology, human activity and behaviour etc. to be able to analyze influences on issues pertaining to health, society, economy and environment.

Analysis of urban growth patterns, economic drivers, activity generators, transportation networks, and land value distribution influencing mixed-use and large-scale urban developments.Identification of opportunities for vertical mixed-use development, urban infill development, waterfront development

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - III

Study of urban space, large gathering spaces. Analysis of urban and city context which includes analysis of the city. Study of urban space, large gathering spaces.

Study and analysis of public realm networks including plazas, streets, open spaces, transit hubs, commercial corridors, and pedestrian-oriented environments.

Evaluation of land-use integration, live-work-play environments, and mixed-use urban districts through national and international case studies and being able to identify a suitable urban and architectural project. Possible Project Identification: Mixed-use urban development, Transit-Oriented Development (TOD) precinct, Waterfront mixed-use development, Commercial and entertainment district, Integrated business district, Cultural and public realm development, Innovation district/Knowledge city

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - IV

Development of integrated mixed-use masterplans comprising residential, commercial, office, hospitality, institutional, recreational, and public functions.

Integration of public spaces, pedestrian networks, active street edges, public transport interfaces, parking strategies, and urban infrastructure within mixed-use developments.

Study of development controls, FAR optimization, building massing, urban skyline, density distribution, and sustainability strategies in mixed-use developments.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

UNIT - V

Introduction to AI-assisted digital twin concepts for evaluating alternative urban development scenarios, simulating the impacts of design interventions on urban livability, mobility, environmental performance, and infrastructure capacity. Identification and development of an architectural project based on study and analysis completed. The architectural project should be a response to the study and analysis and should facilitate a suitable solution to the identified issues. Development of a comprehensive mixed-use architectural project demonstrating integration of urban design principles, public realm, transportation systems, environmental sustainability, universal accessibility, and building services.

Preparation of masterplans, zoning diagrams, mobility plans, public realm strategies, architectural drawings, massing studies, 3D visualizations, and service integration diagrams.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Discussion.

Reference Books:

1. Charles Correa, Housing & Urbanization: Building Ideas for People and Cities'; Thames and Hudson, 2000
2. James Tait, The Architecture Concept Book, Thames and Hudson, 2018
3. Aldo Rossi, "Architecture of the City", Oppositions Book, The MIT Press, 1984
4. Christopher Alexander, "A Pattern Language: Towns, Buildings, Construction'; ", Oxford University Press, 2015.
5. Krier, Rob, "Urban Space", Academy Editions, London,1967.
    a. Rizzoli, 1993
6. Kamu Iyer, "Bombay: From Precincts to Sprawl", Popular Prakashan Ltd; 2014.
7. Kevin Lynch, "The Image of the City", MIT Press, 1960.
8. Kevin Lynch, " Good City Form", MIT Press, 1984.
9. Gordon Cullen, " The Concise Townscape", Architectural Press, 1961.
10. Michael Larice and Elizabeth MacDonald, 'The Urban Design Reader', Routledge 2012
11. Elizabeth Welch, "Architecture and Urban Design"; Willford Press, 2019.
12. Charles Montgomery,' Happy City: Transforming Our Lives Through Urban

Design', Penguin, 2015.
13. Jan Gehl, 'How to Study Public Life: Methods in Urban Design', Island press, 2013.
14. Frederica Miller, 'Ecovillages around the World: 20 Regenerative Designs for Sustainable Communities'; Findhorn Press, 2018.
15. Mathew Carmona et al, "Public Places Urban Spaces: The Dimensions of Urban Design 2nd edition", Elseiver Ltd., 2010

Course Outcomes (COs):

The students will be able to –

1. Apply key concepts and theories within urban studies to analyze the multi-dimensional parameters from case studies (PO1, PO2, PO4, PO5, PO6, PO7; PSO1, PSO2)
2. Analyse macro, meso and micro-scale components of urban context considering the factors of health, society, economy and environment.(PO4, PO5, PO6, PO7, PO9, PO11; PSO1, PSO2)
3. Analyse the relationship between urban and architectural built environment (PO4, PO5, PO10; PSO1, PSO3)
4. Assess the influence of mixed use development on urban context and formulate strategies for intervention (PO1, PO2, PO4, PO6, PO7, PO10; PSO1, PSO2, PSO3)
5. Develop architectural solutions for a mixed-use development that are integrated in the urban context (PO1, PO2, PO3, PO4. PO5, PO6, PO7, PO8, PO9, PO11; PSO1, PSO2, PSO3)

Course Assessment and Evaluation:

<table>
<tr><th colspan="4">Continuous Internal Evaluation (CIE): 50 Marks</th></tr>
<tr><th colspan="2">Assessment Tool</th><th>Marks</th><th>Course outcomes addressed</th></tr>
<tr><td colspan="2">Review-I</td><td>30</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Review-II</td><td>20</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Semester End Examination (SEE):VIVA-VOCE</td><td rowspan="3">50</td><td rowspan="3">CO1, CO2, CO3, CO4, CO5</td></tr>
<tr><td>Design/ Drawing</td><td>Viva-voce</td></tr>
<tr><td>40</td><td>10</td></tr>
</table>

Note:

- Literature survey will be a requirement for Architectural Design study. Periodic review by external juror for subjects going for viva voce.

- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day at the beginning of the **Viva voce exam.**

SEMESTER – VIII

BUILDING MATERIALS & CONSTRUCTION TECHNOLOGY –VIII	
Course Code: AR802	**Course Credits: 0 : 0 : 4**
Prerequisite: Nil	**Contact hours: 4x15P**
Course Coordinators:Assoc. Prof. Sudha Kumari	

Course Content

UNIT - I

Highrise buildings – Structural Design, issues, constraints, materials, wind bracing, fabrication, Equipment, maintenance and environmental issues.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - II

Technology integration – Influence of Informatics in Construction Industry, Big data, Cloud Collaboration, Information Management, New advances in Construction Technology, building automation.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT – III

Green Building Concepts, Construction and Materials, Zero Energy building concepts

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT – IV

Retrofit and Repairs: Life cycle concept of buildings and materials, Repairs / Retrofitting of building due to natural disasters, Earthquake resistant Building Construction methods. Makeshift and prefab structures.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

UNIT - V

Smart and Nanomaterials in Construction and Building Industry. Technologically advanced construction techniques and equipment. Introduction to Artificial Intelligence (AI) in the Architecture, Engineering and Construction (AEC) industry

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation, Videos

Reference Books:

1. Modern Construction Handbook – by Andree Watts
2. Modern Construction case studies: Emerging Innovations in Building Techniques – Birkhauser Basel.

Course outcomes:

1. Explain the structural systems, wind bracing, materials, fabrication, equipment, maintenance and environmental issues of high-rise buildings. [PO1, PO8, PO9, PO10, PO11; PSO1, PSO3]
2. Describe how informatics, big data, cloud collaboration, building automation and new construction technologies are integrated into the construction industry. [PO7, PO8, PO10, PO11; PSO1, PSO3]
3. Apply green building and zero energy concepts, materials and construction methods to select sustainable solutions for a building. [PO1, PO5, PO8, PO9, PO10; PSO1, PSO2]
4. Assess the life cycle of buildings and materials, and recommend repair, retrofit, earthquake-resistant and prefab construction methods. [PO8, PO9, PO10, PO11; PSO2, PSO3]
5. Summarise smart and nanomaterials and advanced construction techniques, and discuss the use of AI in the AEC industry. [PO1, PO8, PO9, PO11; PSO1, PSO3]

Continuous Internal Evaluation (CIE): 50 Marks			
Assessment tool		**Marks**	**Course outcomes attained**
Internal Test-I		30	CO1, CO2, CO3
Internal Test-II		30	CO3, CO4, CO5
Average of the two internal tests shall be taken for 30 marks.			
Other Components		**Marks**	**Course outcomes attained**
Assignment-1		10	CO1, CO2, CO3
Assignment-2		10	CO3, CO4, CO5
Semester-End Examination (SEE) (Term Work) Report		**Marks**	**Course outcomes attained**
Portfolio (40)	**Material Study (10)**	50	CO1, CO2, CO3, CO4, CO5

Note:

- For all Term Work examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day of **Term work exams.**

SEMESTER – VIII

IPR & ETHICS	
Course Code: AR803	**Course Credits: 2 : 0 : 0**
Prerequisite: Nil	**Contact Hours: 30L+30S**
Course coordinator: Assoc. Prof. Dr. Rashmi N	

Course content

UNIT - I

Introduction of the subject and its relevance to the architectural field and society. Fundamentals of Intellectual Property- An introduction to the basic concepts of intellectual property, meaning and scope, comparison of intellectual property vs. physical property. Introduction to types of Intellectual Property Rights trademark, Industrial Design, SICLD, Undisclosed information or trade secret, Geographical indicators, plant varieties & farmer's rights, traditional knowledge.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - II

Fundamentals of intellectual property- Introduction to each type of IPR protection procedure with reference to architecture, to provide insight into patent regime, copyrights and architectural infringement (case studies in other areas).

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - III

Prior art search, Technology Transfer and Licensing -Technology Transfer and Commercialization, patent search exercise using the internet, creation of copyright for your own Architectural Design Thesis Project types.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - IV

Filing an application, patent drafting, invention disclosures, Patent Drafting- PCT Applications.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

UNIT - V

Ethics and Plagiarism in Intellectual Property, infringement Cases. Importance, role and challenges of AI in Intellectual Property Rights and Ethics.
Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation

Reference Books:

1. Thomas Fisher, 'Ethics for Architects: 50 Dilemmas of Professional Practice'; Princeton Architectural Press, 2010.

2. Barry Wasserman, Patrick J. Sullivan, Gregory Palermo, ‘Ethics and the Practice of Architecture’; Wiley, 2000.
3. N K Acharya, ‘Text Book on Intellectual Property Rights’; Asia Law House, 2012.
4. VK Ahuja, Archa Vashishtha , ‘Intellectual Property Rights - Contemporary Developments’; Generic, 2020.
5. Philippe Cullet, ‘Intellectual Property Protection and Sustainable Development’; Lexis Nexis India, 2005.

Course outcomes (COs):

The students will be able to -

1. Understand the basic concept of Intellectual Property Rights. (PO2, PO6; PSO1)
2. Describe the different forms of IPR and their characteristics. (PO2, PO6; PSO2)
3. Apply the techniques of prior art search with respect to architectural design and in general. (PO2; PSO2)
4. Apply the principles of filing an application and the importance of patent drafting. (PO11; PSO2)
5. Analyze professional ethics, legislation and intellectual property rights. (PO6; PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks		
Assessment tool	**Marks**	**Course outcomes attained**
Internal Test-I	30	CO1, CO2, CO3
Internal Test-II	30	CO3, CO4, CO5
Average of the two internal tests shall be taken for 30 marks.		
Other Components	**Marks**	**Course outcomes attained**
Assignment-1	10	CO1, CO2, CO3
Assignment-2	10	CO3, CO4, CO5
Semester-End Examination (SEE) (Scaled to 50 Marks)	100	CO1, CO2, CO3, CO4, CO5

SEMESTER – VIII

PROFESSIONAL PRACTICE II	
Course Code: AR804	**Course Credits: 0 : 0 : 3**
Prerequisite: Nil	**Contact Hours: 3x15P**
Course coordinator: Prof. Dr. Jotirmay Chari	

This course equips architecture students with the professional skills required for academic advancement, internships, employment, and professional practice. It focuses on professional identity, communication skills, architectural portfolios, career preparation, and workplace professionalism, delivered through lectures, workshops, critiques, mock interviews, and portfolio reviews.

Course content

UNIT - I

Professional Identity, Workplace Behaviour and Professional Communication: Professionalism and ethics in architectural practice, workplace expectations, professional etiquette, time management, teamwork, accountability. Written communication - Resumes, professional correspondence, email etiquette, meeting notes, project descriptions, statements of purpose, and cover letters.

- Pedagogy / Course delivery tools -: Lectures, workshops, written exercises, peer critique

UNIT - II

Architectural Portfolio Development and Visual Communication: Purpose and types of portfolios, project selection, storytelling through design, graphic hierarchy, visual composition, layout design, typography, image presentation, portfolio sequencing. Digital and print portfolio formats; portfolio reviews and peer critique.

- Pedagogy / Course delivery tools -: Studio workshops, portfolio reviews, peer critique.

UNIT - III

Verbal Communication, Presentation and Interview Skills: Presentation planning, storytelling techniques, public speaking, audience engagement, voice modulation, confidence-building, visual aids. Communication in client meetings, project briefings. Interview etiquette, presentation technique, bodylanguage, personal introductions, professional appearance, answering common interview questions.

- Pedagogy / Course delivery tools -: Lectures, Mock interviews, Presentation practice.

UNIT - IV

Career Preparation and Professional Networking: Networking skills, professional associations, digital identity management, LinkedIn and professional platforms. Personal branding.

- Pedagogy / Course delivery tools -: Networking exercises, digital profile workshops.

UNIT - V

Integrated Professional Practice and Career Portfolio: Synthesis of portfolio, resume, cover letter, professional profile, communication skills, and interview preparation into a cohesive professional identity. Portfolio reviews, mock recruitment exercises, professional presentations, feedback sessions. Introduction to AI tools applied in portfolio layout, resume and cover letter drafting, presentation structuring, interview practice, and professional profile development

- Pedagogy / Course delivery tools -: Portfolio review, mock recruitment exercise, viva voce presentation.

Reference Books:

1. The Architecture Portfolio Guidebook- Harold Linton
   Presentation Techniques- Alex White
2. The Architect's Handbook of Professional Practice- AIA
3. Professional Practice for Architects and Project Managers- David Chappell
4. Becoming an Architect- Lee Waldrep
5. Presentation Zen- Garr Reynolds
6. Talk Like TED- Carmine Gallo
7. On Writing Well- William Zinsser
8. HBR Guide to Better Business Writing- Bryan A. Garner
9. 101 Things I Learned in Architecture School- Matthew Frederick

Course outcomes (COs):

The students will be able to –

1. Analyse the professional responsibilities within the ambit of the laws of the land by understanding and assessing building bye laws, codes. (PO6, PO10,PSO3)
2. Explain and apply easement rights related to land and property as required. (PO5, PO6, PO10, PSO3)
3. Apply and evaluate the process of valuation in architecture works. (PO6, PO10, PO11, PSO3)
4. Explain and apply the process of dilapidation and arbitration to land and property and evaluate suitable methods for dispute resolution. (PO6, PO11, PSO3)
5. Explain, analyse and evaluate key insights on subjects of land holding and land acquisition. (PO6, PO10, PO11, PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks			
Assessment tool		**Marks**	**Course outcomes attained**
Assignment-1		30	CO1, CO2, CO3
Assignment-2		20	CO3, CO4, CO5
Semester-End Examination (SEE) (Viva Voce)		**Marks**	**Course outcomes attained**
Portfolio (40)	**Viva (10)**	50	CO1, CO2, CO3, CO4, CO5

Note:

- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day at the beginning of the **Viva voce exam.**

SEMESTER – VIII

ELECTIVE II	
Course Code: AR805	**Course Credits: 0 : 0 : 3**
Prerequisite: Nil	**Contact Hours: 3x15P**
Course coordinator:Asst. Prof Tanvi Katre	

Course content

UNIT I

Introduction regarding areas of special interest and types of projects; Aims and Objectives of projects and relevance to time and need

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT II

Topic selection and the norms and standards to be followed; Ground work for project to be done by studying similar projects with same requirements.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT III

Case study and collection of data; Elaboration of the data and study of similar projects with special interest on scope and need.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT IV

Analysis and synthesis of data; Preparation of project analysis and presentation.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT V

Finalization of architectural design project with requirements, site details etc.; To set up design process in 9th semester. Critical evaluation of AI-generated outputs, emphasizing originality, ethical use, academic integrity, and informed design decision-making.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Reference books:

1. Atul Deulgaonkar, ‘Laurie Baker: Truth in Architecture’; Jyotsna Prakashan, 2015.
2. Simon Unwin, ‘Analysing Architecture’; Routledge, 2009.
3. Joseph De Chiara, Michael J. Crosbie, ‘Time Saver Standards for Building Types’; McGraw Hill Education, 2017.

4. Donald Watson, Michael Crosbie, John Callender, ‘Time Saver Standards for Architectural Design Data’; McGraw-Hill Education, 1997.
5. Ernst Neufert, ‘Architects' Data’; Wiley-Blackwell, 2019.
6. David Bergman, ‘Sustainable Design: A Critical Guide’; Princeton Architectural 26 Press, 2012.
7. Elizabeth A. T. Smith, Peter Gossel, ‘Case Study Houses’; Taschen GmbH, 2009.
8. Peter Blundell Jones, Eamonn Canniffe, ‘Modern Architecture Through Case. Studies 1945 to 1990’; Architectural Press, 2007.
9. Analyzing Architecture Case Studies for Beginners- RIBA.
10. National building code of India, Bureau of Standards.
11. Building Byelaws and Zonal regulations.

Course outcomes (COs):

The students will be able to -

1. Identify their areas of special interest. (PO1, PO6)
2. Assess the issue, need and background study for the selected topic. (PO1, PO2; PSO2)
3. Apply methods to collect appropriate data for their research. (PO2, PO4, PO5, PO7; PSO1, PSO2)
4. Analyse and synthesize data. (PO2, PO4, PO7; PSO1, PSO2)
5. Evaluate project and site details for their Architectural Design Project in the following semester. (PO1, PO3, PO7, PO9, PO10, PO11; PSO1, PSO2, PSO3)

Course Assessment and Evaluation:

<table>
<tr><th colspan="3">Continuous Internal Evaluation (CIE): 50 Marks</th></tr>
<tr><th colspan="2">Assessment tool</th><th>Marks</th><th>Course outcomes attained</th></tr>
<tr><td colspan="2">Assignment-1</td><td>30</td><td>CO1, CO2, CO3</td></tr>
<tr><td colspan="2">Assignment-2</td><td>20</td><td>CO3, CO4, CO5</td></tr>
<tr><td colspan="4"></td></tr>
<tr><th colspan="2">Semester-End Examination (SEE) (Viva Voce)</th><th>Marks</th><th>Course outcomes attained</th></tr>
<tr><td>Portfolio (40)</td><td>Viva (10)</td><td>50</td><td>CO1, CO2, CO3, CO4, CO5</td></tr>
</table>

Note:

- For all viva voce examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day at the beginning of the **Viva voce exam.**

SEMESTER – VIII

SUSTAINABLE ENVIRONMENTAL DESIGN	
Course Code: AR806	**Course Credits: 3 : 0 : 0**
Prerequisite: Nil	**Contact Hours: 45L+45S**
Course coordinator: Assoc. Prof. Divya Susanna Ebin	

Course content

UNIT I

Introduction to sustainability and sustainable development in the built environment. Evolution of sustainable architecture and contemporary environmental challenges including climate change, rapid urbanization, resource depletion, carbon emissions, environmental degradation, and resilience.

Principles of sustainable environmental design encompassing environmental, social, and economic sustainability. Introduction to climate-responsive architecture, circular economy concepts, sustainable materials, energy-efficient buildings, life-cycle thinking, and sustainable urban development.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT II

Introduction to sustainability assessment methods and performance evaluation frameworks used in the building sector.

Overview of national and international green building rating systems including GRIHA, LEED, BREEAM, and IGBC. Introduction to building performance benchmarks, environmental certification, and the role of sustainability assessment in promoting resource-efficient and climate-responsive buildings.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT III

Design of climate-responsive building envelopes and high-performance building skins considering energy efficiency, thermal comfort, daylighting, ventilation, and occupant comfort.

Introduction to energy-efficient building systems including HVAC, lighting systems, building automation, Building Management Systems (BMS), high-performance glazing, insulation materials, green roofs, cool roofs, and façade technologies.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT IV

Role of climate, solar geometry, and site planning in achieving energy-efficient buildings. Principles of passive design including building orientation, shading devices, natural ventilation, daylighting, thermal mass, passive cooling techniques, courtyard planning, landscape integration, and microclimate modification.

Introduction to renewable energy integration and Net Zero Energy Buildings (NZEB) as contemporary approaches towards sustainable architecture.

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

UNIT V

Study of national and international case studies of sustainable and energy-efficient buildings. Concepts of building performance evaluation, energy audits, retrofitting strategies, adaptive reuse, renewable energy integration, water conservation, and waste management systems. Introduction to AI tools in environmental analysis for sustainable building design decisions .

- Pedagogy / Course delivery tools-: Chalk and talk, Power Point Presentation & Videos

Reference Books :

1. "Housing climate comfort" by Martin Evans.
2. "Climate responsive architecture" by Arvind Kishan, Baker and Szokolay.
3. "Green Architecture"-Design for a sustainable future by Brende and Robert vale.
4. "Green Architecture"-A guide for sustainable design by Michael J Crosbie.

Course Outcome:

1. Understand the sustainable methods in the current scenario. (PO1, PO2, PO6, PO7; PSO1, PSO2, PSO3)
2. Understand the concept of green buildings. (PO1, PO5, PO7; PSO1, PSO2, PSO3)
3. Apply sustainable concepts in designing built spaces. (PO1, PO3, PO5, PO6, PO7; PSO1, PSO2, PSO3)
4. Apply principles of passive design (PO1, PO7; PSO1, PSO2, PSO3)
5. Evaluate various factors involved in creating a sustainable and energy efficient design in architectural projects. (PO1, PO3, PO4, PO5, PO6, PO7, PO8; PSO1, PSO2, PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks		
Assessment tool	**Marks**	**Course outcomes attained**
Internal Test-I	30	CO1, CO2, CO3
Internal Test-II	30	CO3, CO4, CO5
Average of the two internal tests shall be taken for 30 marks.		
Other Components		
Assignment-1	10	CO1, CO2, CO3
Assignment-2	10	CO3, CO4, CO5
Semester-End Examination (SEE) (Scaled to 50 Marks)	100	CO1, CO2, CO3, CO4, CO5

SEMESTER- VIII

WORKING DRAWING-II	
Course Code: AR807	**Course Credits: 0 : 0 : 2**
Prerequisite: Nil	**Contact Hours: 2x15P**
Course coordinator: Assoc. Prof. Tejaswini H	

Note: The portfolio and material study shall be submitted at the end of the semester as mandatory components of the final assessment and evaluation.

Course Content

UNIT – I

Project Work: Project continued from previous working drawings. Preparation of structural drawings. Understand conventions & symbols.-Foundations/Footing detail - Plan and sections, plinth band, tie beams,.-Typical column sections; typical beam sections; typical slab sections; miscellaneous details such as staircase, ramp, chajja, lintel, arch, duct & pergolas etc.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT – II

Preparing a complete set of service drawings for the above said project. The drawings incorporate service details complete with schedule and all specifications.-Electrical drawings: Conventions & symbols; plans at all levels along with legend.-Mechanical drawings: Conventions & symbols; plans at all levels; details of lift along with legend.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT – III

Preparing a complete set of service drawings for the above said project. The drawings to incorporate service details complete with schedule and all specifications.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT – IV

Complete integration of architectural, structural and services drawings and details.Application of AI-assisted quality control for improving the accuracy, consistency, and efficiency of construction documentation while emphasizing professional responsibility, data integrity, and ethical use of AI.

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

UNIT – V

-Detailed interior drawings.
-Flooring and skirting plan with fixing details for all floors
-Dado and wall tile pattern for all floors.
-Plaster pattern and color scheme
-Reflected ceiling plan and false ceiling details

- Pedagogy / Course delivery tools-: Power Point Presentation, Discussion

Reference Books:

1. Fred A. Stitt, 'Working Drawing Manual'; McGraw-Hill Education, 1998
2. George T. Clayton, 'Site Plan in Architectural Working Drawings'; Stipes Publishing Llc., 1973
3. Donald Watson, Michael Crosbie, 'Time-Saver Standards for Architectural Design'; McGraw Hill Education, 2017
4. Keith Styles, Andrew Bichard, 'Working Drawings Handbook'; Taylor and Francis
5. Edward Muller, Philip Grau III, 'Reading Architectural Working Drawings: Residential and Light Construction'; Pearson, 2003
6. William J. O'Connell, 'Graphic Communications in Architecture: Standard Format for Architectural Working Drawings'; Stipes Publishing, 1985
7. Rosemary Kilmer, W. Otie Kilmer, 'Construction Drawings and Details for Interiors'; John Wiley & Sons, 2016

Course Outcomes (COs):

Students will be able to -

The students will be able to –

1. Understand how structural drawings that are good to be issued to site for construction (PO1, PO8, PO11; PSO1, PSO3)
2. Apply principles of electrical and mechanical drawings that are good to be issued to site for construction (PO1, PO8, PO11; PSO1, PSO3)
3. Apply principles of water supply and sanitary drawings that are good to be issued to site for construction (PO1, PO8, PO11; PSO1, PSO3)
4. Apply principles of integrated architectural and services drawings (PO1, PO8, PO11; PSO1, PSO3)
5. Create interior drawings and develop innovative construction details that are good to be issued to site for construction (PO1, PO2, PO3, PO5, PO8, PO11; PSO1, PSO2, PSO3)

Course Assessment and Evaluation:

Continuous Internal Evaluation (CIE): 50 Marks		
Assessment tool	**Marks**	**Course outcomes attained**
Assignment-1	30	CO1, CO2, CO3
Assignment-2	20	CO3, CO4, CO5
Semester-End Examination (SEE) (Term Work)	**Marks**	**Course outcomes attained**

Portfolio	Material Study	50	CO1, CO2, CO3, CO4, CO5
40	**10**		

Note:

- For all Term Work examinations one internal faculty and one external faculty will conduct the exam.
- Portfolios have to be submitted on a prescribed date announced by the department for the viva voce subjects and term work subjects.
- All students have to register on the first day of **Term work exams.**