



K.R. MANGALAM UNIVERSITY
THE COMPLETE WORLD OF EDUCATION

**SCHOOL OF
ARCHITECTURE AND DESIGN
(SOAD)**

**Programme Handbook
(Programme Study and Evaluation Scheme)**

Bachelor of Architecture

Programme Code: 16

FIVE YEAR UNDERGRADUATE PROGRAMME

2025-30

(Approved in the 38th Meeting of Academic Council Held on 28th June 2025)

TABLE OF CONTENTS

1. Preface.....	4
2. University Vision and Mission.....	4
2.1 Vision	4
2.2 Mission.....	4
3. About the School	4
4. School Vision and Mission	5
5. About the Programme.....	5
5.1 Definitions.....	6
5.2 Programme Educational Objectives (PEO).....	6
5.3 Programme Outcomes (PO)	7
5.4 Programme Specific Outcomes (PSO).....	7
5.5 Career Avenues.....	8
5.6 Duration.....	8
5.7 Eligibility Criteria.....	8
5.8 Criteria for Award of Degree.....	9
6. Student's Structured Learning Experience from Entry to Exit in the Programme.....	9
7. Programme Structure	19
Semester I.....	24
Semester II	48
Semester III.....	66
Semester IV.....	92
Semester V	114
Semester VI.....	136
Semester VII	155
Semester VIII.....	170
Semester IX.....	171
Semester X.....	184

1.Preface

K.R. Mangalam University envisions all its programs in the best interest of its students. It imbibes an outcome-based curriculum for all its programs to provide a focused, student-centric syllabus with an agenda to structure the teaching-learning experiences in a more outcome-based.

The outcome-based curriculum strengthens students' experiences and prepares the students for both, academia and employability, sustainability, and life-long learning.

Each program reflects the promise to accomplish the learning outcomes by studying the courses. The graduate attributes encompass values related to well-being, emotional stability, critical thinking, social justice, and skills for entrepreneurship.

The redesigned curriculum focuses on the multi-disciplinary nature of the field of design with an emphasis on core design subjects with skills to represent the process of design graphically. Another important part is the aspect of realizing the concept and graphical representation into a workable design. Students are exposed to research and hands-on project-based education with active studio sessions. Visiting faculty and external examiners are professionals and academicians chosen from the field of design. Students develop their design with inputs from highly driven team of faculty members and working professionals.

Salient features of this model curriculum are:

1. Curriculum has been designed in such a way that it encourages innovation and research.
2. The revised curriculum has been designed where the students can understand the industry requirements and have hands-on experience.
3. The students will develop a problem-solving approach and will meet the challenges of future.
4. Emphasis on hands-on training has been promoted by including six-months Professional Training in eighth semester.
5. Bachelor of Architecture Programme will ensure the revision of the curriculum to help students to achieve better employability, start-ups, and other avenues for higher studies

The K.R. Mangalam University hopes that the outcome-based curriculum will help students realize their careers as informed, sensitive, and creative architects and designers.

K.R. Mangalam University was founded in the year 2013 by Mangalam Edu Gate, a company incorporated under Section 25 of the Companies Act, 1956.

Uniqueness of KRMU

- i. Enduring legacy of providing education to high achievers who demonstrate leadership in diverse fields.
- ii. Protective and nurturing environment for teaching, research, creativity, scholarship, social and economic justice.

Education Objectives

- i. To impart undergraduate, post-graduate and Doctoral education in identified areas of higher education.

- ii. To undertake research programmes with industrial interface.
- iii. To integrate its growth with the global needs and expectations of the major stake holders through teaching, research, exchange & collaborative programmes with foreign, Indian Universities/Institutions and MNCs.
- iv. To act as a nodal centre for transfer of technology to the industry.
- v. To provide job-oriented professional education to the student community with particular focus on Haryana.

2.University Vision and Mission

2.1 Vision

K.R. Mangalam University aspires to become an internationally recognized institution of higher learning through excellence in interdisciplinary education, research, and innovation, preparing socially responsible life-long learners and contributing to nation-building.

2.2 Mission

- Foster employability and entrepreneurship through futuristic curriculum and progressive pedagogy with cutting-edge technology
- Instill notion of lifelong learning through stimulating research, Outcomes-based education, and innovative thinking
- Integrate global needs and expectations through collaborative programs with premier universities, research centres, industries, and professional bodies.
- Enhance leadership qualities among the youth having understanding of ethical values and environmental realities

3. About the School

The **School of Architecture & Design (SOAD)** offers a robust, interdisciplinary education, providing students with hands-on experience through **experiential and project-based learning**. The curriculum is designed to foster innovation and technical proficiency across various design fields.

SOAD offers seven key programs:

- 1. Bachelor of Architecture (B.Arch)** – A five-year program that develops visionary architects with a strong foundation in design, construction, and environmental sustainability.
- 2. Bachelor of Design (B.Des) in Fashion Design** – A four-year program focused on fostering creativity and technical skills in fashion, preparing students for the dynamic fashion industry.
- 3. Bachelor of Design (B.Des) in Interior Design** – Prepares students to design functional and aesthetically pleasing interior spaces through a combination of creativity, technical knowledge, and practical applications.

4. **Bachelor of Design (B.Des) in Textile Design** – Emphasizes innovative textile creation with an emphasis on sustainability and traditional craftsmanship.
5. **Bachelor of Fine Arts (B.F.A)** – Explores various visual arts disciplines such as painting, sculpture, and graphic arts.
6. **Bachelor of Design (B.Des) in Game Design & Animation** – A specialized program focused on designing interactive games and animations, merging creative storytelling with technical skills.
7. **Bachelor of Design (B.Des) in UX UI & Interaction Design** – Concentrates on creating user-centric digital solutions, emphasizing user experience (UX), user interface (UI), and interaction design.

SOAD emphasizes **experiential learning** through **project-based education**, giving students practical exposure to real-world challenges. This is further enhanced through **site visits, study tours, guest lectures**, and **industry integration**, ensuring students gain valuable insights and experience in their respective fields. The school maintains strong industry connections, enabling students to engage with leading professionals and firms in architecture, design, and related industries.

4.School Vision and Mission

Vision: To be a leading institution that develops innovative and sustainable design thinkers who shape the future of Architecture and Design globally.

Mission:

- Provide a comprehensive structured learning experience that develops strong cognitive thinking and skills in the field of architecture and design.
- Foster a collaborative and inclusive learning environment that encourages creativity and critical thinking.
- Promote sustainable and ethical design practices that address global and local challenges.
- Instill a strong foundation of ethical principles, ensuring graduates act with integrity and social responsibility in their professional endeavours.
- Engage with the community and industry to advance the role of architecture and design in society.

5.About the Programme

The Bachelor of Architecture (B.Arch) is a five-year undergraduate degree program that teaches students how to plan, design, and construct physical structures .The programs is designed to impart scientific knowledge to the students and will provide theoretical as well as practical training & knowledge. The program offered by the school is approved by Council of Architecture (COA), New Delhi. The curriculum has been specifically designed to impart latest knowledge and skills relevant to Architecture field including Industrial Visits / Training / Guest Lectures of Experts from Industry and Academia.

The programme equips students with the necessary skills and knowledge to embark on a rewarding career in architecture. Through a blend of studio-based learning, technical courses, and theoretical studies, students learn to design sustainable, functional, and aesthetically pleasing structures. It typically emphasizes creativity, problem-solving, and collaboration, preparing graduates to address the evolving challenges of the built environment.

Upon completion, graduates are equipped with the **necessary skills** to begin their careers as **architects**, with a deep understanding of both **theory** and **practice**. The curriculum's integration of hands-on experience ensures that students are well-prepared for real-world projects.

5.1 Definitions

➤ Programme Outcomes (POs)

Programme Outcomes are statements that describe what the students are expected to know and would be able to do upon the graduation. These relate to the skills, knowledge, and behaviour that students acquire through the programme.

➤ Programme Specific Outcomes (PSOs)

Programme Specific Outcomes are statements about the various levels of knowledge specific to the given program which the student would be acquiring during the program.

➤ Programme Educational Objectives (PEOs)

Programme Educational Objectives of a degree programme are the statements that describe the expected achievements of graduates in their career, and what the graduates are expected to perform and achieve during the first few years after graduation.

➤ Credit

Credit refers to a unit of contact hours/ tutorial hour per week or 02 hours of Lab/ Practical work per week.

➤ Studio Course

Studio courses are practical, hands-on classes where students engage in design projects, allowing them to apply theoretical knowledge in real-world scenarios. These courses emphasize creativity, collaboration, and iterative design processes, often culminating in tangible outcomes like models or design presentations.

5.2 Programme Educational Objectives (PEO)

PEO 1: Human Values and Social Impact: Graduates will integrate human values and social responsibility in their work, creating inclusive and sustainable spaces that enhance community well-being.

PEO 2: Career Excellence: Graduates will advance in their careers through continuous learning and the application of innovative design and technical skills in diverse professional settings.

PEO 3: Professional Integrity: Graduates will demonstrate professional competence, collaborating across disciplines to solve architectural challenges with sensitivity to cultural and environmental contexts.

PEO 4: Ethical Practice: Graduates will adhere to ethical standards, prioritizing sustainability, cultural sensitivity, and social welfare in their design and professional decisions.

PEO 5: Entrepreneurial Innovation: Graduates will foster entrepreneurial skills to create and lead successful design ventures, embracing innovation while maintaining ethical business practices.

5.3 Programme Outcomes (PO)

PO1- Creative Design Solutions: Demonstrate the ability to develop innovative, functional, and aesthetically pleasing Architectural solutions that meet client needs and enhance the user experience.

PO2 - Technical Competence: Apply advanced technical skills in space planning, materials selection, and construction methods to create efficient and sustainable built environments.

PO3 - Ethical and Professional Responsibility: Exhibit a strong commitment to ethical practices, social responsibility, and professional conduct, ensuring respect for cultural, environmental, and societal contexts.

PO4 - Effective Communication: Effectively communicate design ideas and solutions through visual, oral, and written means, engaging with clients, stakeholders, and multidisciplinary teams.

PO5 - Sustainable Design Practices: Integrate principles of sustainability into Architectural projects, promoting environmental stewardship and reducing the ecological impact of built environments.

PO6 - Leadership and Social Skills: lead multidisciplinary teams effectively, communicate with diverse stakeholders, and exhibit strong social skills essential for collaborative and inclusive design practices and contributing to the community through socially responsible design initiatives.

5.4 Programme Specific Outcomes (PSO)

On completion of the program, students will be:

Program Specific Outcomes (PSO):

On completion of the program, students will be:

PSO1 – Understanding: Architectural principles, theories, history, materials, processes, and technologies, enabling them to articulate complex concepts and design contexts effectively.

PSO2 – Applying: Knowledge of space planning, environmental context, materials, construction technology, and building bye-laws to create functional, aesthetically pleasing, and user-cantered designs that meet diverse client needs.

PSO3 – Analysing: Architectural challenges by situations & complexities deconstructing spatial dynamics, material performance, human factors, and sustainability considerations to develop effective and efficient design solutions.

PSO4 – Evaluating: Architectural projects using established criteria and industry standards to ensure quality, safety, sustainability, and ethical considerations, and make informed design decisions.

PSO5 – Creating: Experimentation with new materials and technologies to produce original and ground-breaking architectural designs.

5.5 Career Avenues

Opportunities exist in both public & private sector, in the field of Architecture & Building construction industry.

Graduates can pursue careers in Architecture firms, construction companies, urban planning agencies, real estate agencies, government bodies, or even as independent consultants or entrepreneurs. The diverse knowledge gained during the program ensures that B.Arch. graduates are versatile and capable of adapting to various roles within the field.

5.6 Duration

1) As per Council of Architecture (COA) directives & regulations the B.Arch programme shall comprise of two stages: Stage-I (First 3 years) & Stage-II (Fourth & Fifth Year). The Minimum duration for the completion of B.Arch. Programme offered by the university is 5 academic years. or 10 semesters of 15 to 18 working weeks (90 work days) each, inclusive of six months or one semester of approximately 16 working weeks of practical training during 8th semester.

2) 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.

3) 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.

4) 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.

(5) 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.

(6) 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.

(7) 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

5.7 Eligibility Criteria

1) No candidate shall be admitted to architecture course unless he has passed an examination at the end of the 10+2 scheme of examination with at least 50 per cent. aggregate marks in Physics, Chemistry and Mathematics and also at least 50 per cent. marks in aggregate of the 10+2 level examination or passed 10+3 Diploma Examination with Mathematics as compulsory subject with at least 50 per cent. marks in aggregate.

(2) The candidate needs to qualify an Aptitude Test in Architecture conducted by the Council complying with the Admission Norms prescribed in Appendix-D.

(3) The institutions shall give weightage of 50 per cent. marks for aptitude tests and 50 per cent. marks in the qualifying examination as provided in Council of Architecture (COA) regulations in the matter of admissions.

5.8 Criteria for Award of Degree

A candidate shall be awarded the degree of Architecture course by the University or Institution for having earned the minimum credits as specified in the curriculum as per Council of Architecture (COA) directives & regulations.

6. Student's Structured Learning Experience from Entry to Exit in the Programme

➤ **Education Philosophy and Purpose:**

● **Learn to Earn a Living:**

At KRMU we believe in equipping students with the skills, knowledge, and qualifications necessary to succeed in the job market and achieve financial stability. All the programmes are tailored to meet industry demands, preparing students to enter specific careers and contributing to economic development.

● **Learn to Live:**

The University believes in learners' holistic development, fostering critical thinking, creativity, emotional intelligence, and a deeper understanding of the world. Our aim is to nurture well-rounded individuals who can contribute meaningfully to society, lead fulfilling lives, and engage with the complexities of the human experience.

➤ **University Education Objective: Focus on Employability and Entrepreneurship through Holistic Education using Bloom's Taxonomy**

By targeting all levels of Bloom's Taxonomy—remembering, understanding, applying, analysing, evaluating, and creating—students are equipped with the knowledge, skills, and attitudes necessary for the workforce and entrepreneurial success. At KRMU we emphasize on learners critical thinking, problem-solving, and innovation, ensuring application of theoretical knowledge in practical settings. This approach nurtures adaptability, creativity, and ethical decision-making, enabling graduates to excel in diverse professional environments and to innovate in entrepreneurial endeavours, contributing to economic growth and societal well-being.

➤ **Importance of Structured Learning Experiences**

A structured learning experience (SLE) is crucial for effective education as it provides a clear and organized framework for acquiring knowledge and skills. By following a well-defined curriculum, learners can build on prior knowledge systematically, ensuring that foundational concepts are understood before moving on to more complex topics. This approach not only enhances comprehension but also fosters critical thinking by allowing learners to connect ideas and apply them in various contexts. Moreover, a structured learning experience helps in setting clear goals and benchmarks, enabling both educators and students to track progress and make necessary adjustments. Ultimately, it creates a conducive environment for sustained intellectual growth, encouraging learners to achieve their full potential. At K.R. Mangalam University SLE is designed as rigorous activities that are integrated into the curriculum and provide students with opportunities in two parts:

- **Inside Classroom:** Structured learning in the classroom focuses on building cognitive outcomes through a student-centric approach. The methods used in this approach include:

- **Cognitive Learning:** Students develop their critical thinking and problem-solving skills by engaging with fundamental concepts in design, materials, and construction. They are taught to analyse spaces, understand user needs, and design functional and aesthetic solutions.
 - **Student-Centric Learning:** The focus is on active participation, where students are encouraged to ask questions, collaborate, and engage in peer discussions. This fosters independent learning and critical reflection on design processes.
 - **Teaching Methods:** A mix of lectures, design critiques, workshops and seminars ensures that students grasp both the theoretical and practical aspects of Architecture. Visual aids, case studies, and multimedia presentations are used to enhance understanding.
 - **Tools and Techniques:** Various design software are introduced to equip students with technical skills in creating detailed plans and 3D models. The hands-on experience with these tools helps them translate concepts into tangible design outcomes.
 - **Approach:** Design thinking and research-based projects are emphasized. These allow students to identify problems, conduct research, brainstorm ideas, and prototype solutions, enhancing their creativity and technical skills.
- **Outside Classroom: The outside classroom experience enhances students' people skills and psychomotor skills by involving them in industry-related, community, and hands-on activities:**
- **People Skills:** Students work on real-world projects, collaborating with professionals, peers, and communities. This helps them improve communication, teamwork, and client interaction skills. Industrial site visits, internship and participation in design workshops offer practical exposure to industry standards and practices.
 - **Psychomotor Skills:** Students engage in hands-on learning through field work, material exploration, and fabrication techniques. In workshops, they handle tools and materials, building furniture models and experimenting with construction methods, which improves their dexterity and understanding of material properties.
 - **Industry Interactions:** Regular industry visits to places of **architectural interest**, professional training/internship with Architectural firms or government organizations and collaborative projects with design firms allow students to bridge the gap between classroom learning and real-world practice. They get to apply classroom knowledge in a professional setting, gaining insights into market trends and industry requirements.
 - **Community Engagement:** Participation in community-based design projects fosters a sense of social responsibility. Students might engage in projects that aim to improve public spaces or address the needs of underserved communities, allowing them to apply design principles in meaningful ways.
- **Educational Planning and Execution WHAT, WHEN & HOW learning will happen**

The educational planning and execution framework for Bachelor of Architecture (B.Arch.) programme at the School of Architecture & Design (SOAD) is designed in accordance with **Council of Architecture (COA) (Minimum standards of Architectural education) Regulations, 2020 guidelines** to provide a structured and enriching learning experience. This framework aims to facilitate meaningful engagement, foster critical thinking, and encourage

creativity among students. By clearly outlining “WHAT, WHEN, and HOW” learning will take place, the school ensures that all educational activities align with the program's objectives and contribute to the holistic development of our aspiring Architects.

The programme is designed around the educational philosophy OF "LEARN TO EARN LIVING" and "LEARN TO LIVE," providing a holistic learning experience from entry to exit.

Entry Phase

Upon entry, students are introduced to the foundational principles of design and open electives such as environmental studies and disaster management. Orientation sessions emphasize understanding the fundamentals of Architecture field and the ethical responsibilities of architects. This initial phase emphasizes the importance of knowledge not just as a means to earn a living, but as a way to engage meaningfully with society.

Core Learning

As students' progress, they delve deeper into both the theoretical and practical aspects of architecture & design. Courses on design ethics, building sciences and applied engineering practices, and user experience equip students with essential skills for their future careers. Hands-on workshops and industry collaborations emphasize the concept of learning as preparation for professional success while fostering a sense of civic responsibility and personal growth. We have a strong students' support system in terms of differential learning (slow & fast learning), mentor-mentee system and personal counselling thereby ensuring students move up on the learning curve.

Skill Development

The program emphasizes developing versatile skills essential for a successful career in architecture, including research, design thinking, drafting, and project management. Through collaborative design projects, visit to industry, industry connect and networking students learn teamwork and communication, vital not just for professional success but also for fostering meaningful relationships in their personal lives.

Thesis and Exit Phase

In the final phase, students undertake Thesis projects that integrate their learning and showcase their creativity and professionalism. This culminates in a portfolio that reflects their readiness to enter the workforce when they go for training in the final semester. Additionally, KRMU Career Development Cell (CDC) assist with job placements, reinforcing the "Learn to Earn" philosophy. The program maintains a strong focus on personal values and lifelong learning, encouraging students to approach their careers as opportunities to contribute positively to society.

Co-Curricular and Extra-Curricular Activities

Students actively participate in 13 clubs and societies within the university, ranging from media production to cultural expression. These clubs facilitate peer interaction, teamwork, and leadership opportunities, helping students develop a well-rounded personality. Regular industry visits, guest lectures, and workshops by industry experts ensure that students remain connected

to real-world design practices, bridging the gap between academic learning and professional expectations.

Community Connect

Community connects programs enhance students' social awareness and responsibility, allowing them to engage with various societal issues related to design and the built environment. As interior designers, students learn to consider the impact of their work on communities and to advocate for inclusive and sustainable practices. Participation in sports and cultural activities further contributes to a balanced lifestyle, promoting teamwork and resilience.

Ethics and Values

The programme places a strong emphasis on ethics, values, and a code of conduct in design practice. Students are encouraged to embody professionalism and integrity in their work, preparing them to be responsible designers and active citizens.

Career Counselling and Entrepreneurship

Career counselling services provide guidance on job placements, internships, and skill development, helping students navigate their career paths. Additionally, the university's incubation centre fosters entrepreneurial and leadership qualities, encouraging students to explore innovative ideas and start their ventures.

➤ Components of Educational Planning

All planned activities will be executed as scheduled, ensuring a consistent and enriching learning environment that supports the development of practical and theoretical skills in Architecture & design. The school will follow the following for conducting the semester educational, co-curricular and extracurricular activities.

1. University Calendar:

The University Calendar outlines key academic dates, including the start and end of terms, examination periods, and holidays that impact Bachelor of Architecture (B.Arch.) program.

2. Timetable:

The Timetable presents a structured overview of class sessions, lecture timings, studio hours, and project work, offering clarity on the weekly schedule for students.

3. School Calendar:

The School Calendar provides a detailed schedule of important events, workshops, design critiques, and submission deadlines specific to SOAD.

4. Activity Calendar:

The Activity Calendar highlights extracurricular events, guest lectures by industry professionals, and site visits that complement the academic curriculum, enriching students' understanding of interior design practice.

5. Class Sessions/Lectures:

Scheduled activities include theoretical lectures, practical studio sessions for hands-on learning, and collaborative projects that foster teamwork and innovation.

6. Monitoring & Review

Student progress is monitored through continuous assessment and feedback. Regular review meetings allow faculty to evaluate course delivery, address challenges, and refine teaching strategies. Student feedback plays a critical role in improving academic quality.

7. **Correction & Continuous Improvement**

The program follows a cycle of ongoing improvement, using feedback and performance reviews to update curricula, refine teaching methods, and enhance faculty development. This ensures the program remains current and responsive to industry needs as per COA Regulations.

➤ **Course Registration and Scheduling**

➤ **Major and Minor Selection Process:**

Every student has to register at the beginning of each semester for the courses offered in the given semester. Major courses are registered centrally for the students as per B.Arch Program curriculum (as per COA Regulations **Appendix 1**). However, for other multidisciplinary courses (VAC, OE) the students have to register by themselves through ERP.

Appendix 1:

A) As per COA Regulations the choice-based credit system, which is a student or learner centric system, the courses of study in the Architecture Degree course shall be as under:

- (1) **Professional Core (PC) Course:** A course, which should compulsorily be studied by a candidate as a core requirement is termed as a Core course.
- (2) **Building Sciences and Applied Engineering (BS and AE) Course:** A course which informs the Professional core and should compulsorily be studied.
- (3) **Elective Course:** Generally, a course which can be chosen from a pool of courses and are of two types:
 - (i) **Professional Elective (PE)** which may be very specific or specialised or advanced or supportive to the discipline or subject of study or which provides an extended scope
 - (ii) **Open Elective (OE)** which enables an exposure to some other discipline or subject or domain or nurtures the candidate 's proficiency or skill
- 4) **Employability Enhancement Courses (EEC)** which may be of two kinds: Employability Enhancement Compulsory Courses (EECC) and Skill Enhancement Courses (SEC)

B) The Weightage in terms of Credits for each of the above in the prescribed curriculum of the institution shall be as follows:

- | | |
|---|----------------|
| 1) Professional Core Courses (PC) | : 50 per cent. |
| (2) Building Sciences and Applied Engineering (BS and AE) | : 20 per cent. |
| (3) Elective Courses | |
| (i) Professional Electives (PE) | : 10 per cent. |
| (ii) Open Electives (OE) | : 5 per cent. |
| (4) Professional Ability Enhancement Courses (PAEC) | |

- (i) Professional Ability Enhancement Compulsory Courses (PAECC) : 10 per cent.
- (ii) Skill Enhancement Courses (SEC) : 5 per cent.

Note: - Where it is not possible to offer Open Electives, Professional Electives may have a weightage of 15 percent as per COA Regulation.

➤ **Value-Added Courses (VAC) and Open Electives (OE):**

Value-Added Courses (VAC) and Open Electives (OE) are offered to enhance students' skills and knowledge beyond the core curriculum. Students can select these courses based on their interests, enabling them to gain practical insights and experience in specific areas related to Architecture. The choice of VAC and OE typically occurs at the beginning of each semester where students can consult with faculty and peers to make informed decisions.

➤ **Internships, Projects, Dissertations, and Training**

➤ **Internships/Training**

Students are required to complete a professional training/Internship for one full semester in 8th semester as per COA regulation. The internship carries 18 credits and is evaluated in the following even semester. This hands-on experience is designed to provide students with practical exposure to the industry, allowing them to apply theoretical knowledge in real-world settings.

➤ **Thesis and Research Project**

In the tenth semester, all the students undertake an Architectural Thesis project, where they work on real-life, live sites. This hands-on approach enables them to conduct in-depth research, critically analyse design challenges, and propose innovative solutions, bridging academic learning with real-world practice.

Students pursuing architecture course engage in research projects in ninth semester that allow them to focus on specific areas within the field, aligning with their career goals. These projects are mapped to practical courses and experiential learning activities, ensuring students gain comprehensive insights into their chosen specializations.

➤ **Co-Curricular Activities Credit Choices**

Participation in Co/ Extracurricular activities is part of outside classroom learning.

Students must earn 2 credits from co/ extracurricular activities. One credit from participation in co-curricular activities like Club/Society activities and another credit from Community Service (1 credit each) through participation in NSS/ Redcross activities or NGOs that contribute to their personal development, leadership skills, and community engagement.

- Under the category of **Club/Society**, 1 credit can be earned by registration in one of the Club/Societies of university and active participation in the events organized by the club/society **OR**
- 15 hours of active engagement in any of the recreational/sports activities

Under the category of **Community Service**, 1 credit can be earned by

- 15 hours active engagement in community service through NGO/NSS/Redcross or any other society approved/ empanelled by the university

At the end of the semester, students are required to submit a log of hours, a report, and a certificate of participation/ completion summarizing their activities followed by a presentation.

- **Academic Support (Differential learning needs):** Academic Support Systems for B. Arch students are designed to address diverse learning needs, ensuring each student excels. These systems include:

- **Personalized Tutoring:** One-on-one sessions with experienced tutors focus on areas such as design software, space planning, furniture design, lighting systems, material selection, and project management, customized to individual skill levels.
- **Workshops and Seminars:** Regular workshops on topics like sustainable design, vernacular practices, construction techniques, and Architectural design ethics, along with industrial connections, enhance both practical and theoretical knowledge.
- **Peer Mentoring Programs:** Advanced learners' mentor fellow students by leading project teams and offering guidance on assignments and design critiques, fostering a collaborative and supportive environment.
- **Accessible Learning Resources:** Online platforms provide access to tutorials, design templates, articles, and interactive tools, accommodating various learning styles.
- **Production and Outcome-Based Activities:** Students are encouraged to engage in practical, hands-on activities like design builds, mock-ups, and real-world projects. These works are showcased and recognized, boosting confidence and learning outcomes.
- **Diversity and Inclusion Initiatives:** Programs promoting inclusivity ensure that all design ideas are valued, enriching the learning environment.
- **Feedback and Assessment:** Continuous feedback systems allow students to receive constructive reviews of their work, facilitating growth, innovation, and skill development.

- **Student Career & Personal Support:**

- **Mentor-Mentee:** The Mentor-Mentee Program is an essential component for fostering successful careers as it acts as a bridge between faculty and students. Mentor-mentee relationships often go beyond academic and professional growth at KRMU.
- **Counselling and Wellness Services:** Counselling and Wellness Services for SOAD students are designed to support their mental health and overall well-being in a demanding academic environment. These services include confidential individual counselling sessions, where trained professionals provide guidance on stress management, time management and personal challenges. Group therapy sessions and workshops focus on topics such as resilience, coping strategies and mindfulness, promoting a sense of community and shared experiences. The school conducts sessions on mental health awareness from time to time. Wellness initiatives may include fitness

programs, relaxation activities and access to health resources that promote physical and mental health. By creating a supportive environment, these services help students navigate the pressures of their studies while fostering a balanced and healthy lifestyle.

- **Career Services and Training:** The Career Development Center (CDC) at KRMU provides comprehensive career services and training for SOAD students, focusing on creating ample placement opportunities. In addition to inviting corporate recruiters to campus, the Centre hosts various counselling and training programs aimed at enhancing students' academic and professional skills. These programs equip students with the essential tools needed to secure lucrative careers in their field. Each year, prominent companies visit the KRMU campus, offering attractive job packages to emerging talent. The faculty members and the mentors also ensure that students are well-prepared for the competitive job market.

➤ **Learning and Development Opportunities**

- **Practical Learning (Course Handouts, Session Plans):** Practical learning is supported by detailed handouts, providing structured guidance for students in areas like building material, space planning, climatology, and construction techniques, etc. Sessions are conducted in specialized environments such as Computer labs, studios, Material Museums, surveying & levelling lab and Construction Yard to enhance practical skills.
 - **Experiential Learning (Learning by Doing):**
 - **Inside Classroom:** Design workshops, lighting system setups, building services and spatial planning exercises provide students with hands-on experience. Students apply theories through practical activities like model-making and digital design tool sessions.
 - **Outside Classroom:** Activities such as site visits, industrial visits, material procurement processes, and client interaction give students exposure to real-world challenges, with a focus on developing industry-relevant practical skills.
 - **Case-Based Learning/Problem-Based Learning/Project-Based Learning:** Projects and case studies are carefully aligned with learning outcomes. Students are assigned tasks like design of community centre, library, adaptive reuse or working on sustainable design solutions, with detailed learning guidelines provided to map out the entire process from concept to completion.
 - **Workshops, Seminars, and Guest Lectures:** Regular workshops on topics like sustainable materials, advanced lighting, building services, building construction techniques workshops and digital modelling, supplemented by guest lectures from industry professionals. A tentative schedule will ensure these activities occur throughout each semester, giving students opportunities for direct interaction with experts and hands-on learning experiences.
- **Assessment and Evaluation**
- **Grading Policies and Procedures for theory courses, practical courses, projects, Internships, Dissertation:** As per university examination policy of K R Mangalam University, the Program Outcome assessments is done by aggregating both direct and

indirect assessments, typically assigning 80% weightage to direct assessments and 20% to indirect assessments, to compute the final course attainment.

EVALUATION PATTERN, SOAD

2025-26

Evaluation pattern I: (100% internal)

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Evaluation pattern II: (100% internal)

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Evaluation pattern III: (50% internal-50% external)

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

- Feedback and Continuous Improvement Mechanisms:** Teaching-learning is driven by outcomes. Assessment strategies and andragogy are aligned to course outcomes. Every CO is assessed using multiple components. The attainment of COs is calculated for every course to know the gaps between the desired and actual outcomes. These gaps are analysed to understand where does the student lags in terms of learning levels. Thereafter each student's learning levels are ascertained, if found below desirable level, and intervention strategy is effected in the following semester to make necessary corrections. To cater to the diverse learning needs of its student body, K.R. Mangalam University employs a comprehensive assessment framework to identify both slow and advanced learners. Students' learning levels are continually assessed based on their performance at various stages. If a student's performance in internal assessments falls below or equal to 55%, they are categorized as slow learners. Conversely, if a student's performance score in internal assessments is greater than or equal to 80%, they are identified as advanced learners. Such students are encouraged to participate in advanced learning activities. Through periodic evaluations and the utilization of modern management systems, the institution adeptly tracks students' performance across various courses, allowing for targeted interventions and support mechanisms.
- Academic Integrity and Ethics:** The School of Architecture and Design places a strong emphasis on academic integrity and ethics, fostering a culture of honesty and responsibility among students. Clear guidelines are established to educate students about the importance of plagiarism prevention, proper citation practices, and ethical sourcing in their work. Regular workshops and seminars are conducted to discuss case studies and real-world scenarios, encouraging critical thinking about ethical dilemmas in Interior and Construction field. Faculty members serve as role models, promoting transparency and accountability in their interactions and evaluations. By instilling these values, the school prepares students to uphold high ethical standards in their professional careers, emphasizing the critical role that integrity plays in design.

7. Programme Structure

Five Year B.Arch Course at a Glance

	Courses	Credits
Semester I	7	28
Semester II	7	28
Semester III	8	30

Semester IV	7	28
Semester V	7	26
Semester VI	8	29
Semester VII	6	28
Semester VIII	1	18
Semester IX	6	26
Semester X	3	25
Total	60	266

SEMESTER I

S.no	Course Code	Course Title	Credits
1	ADARAD151	Architectural Design I	8
2	ADARCM152	Construction & Materials I	4
3	ADARAG153	Architectural Drawing & Graphics I	5

4	ADARAS154	Architectural Structures I	3
5	ADARHS155	Human Settlement & Sociology	3
6	ADARAE101	Ecology & Environment	2
7	ADARTC156	Theory and Critical Thinking I	3
		Total	28

SEMESTER II

S.no	Course Code	Course Title	Credits
1	ADARAD251	Architectural Design II	8
2	ADARCM252	Construction & Materials II	4
3	ADARAG253	Architectural Drawing & Graphics II	5
4	ADARAS254	Architectural Structures II	3

5	ADARHA201	History of Architecture I	3
6	ADARSL255	Surveying & Levelling	3
7	ADARCV202	Climatology & Vernacular Architecture	3
		Total	28

SEMESTER III

S.no.	Course Code	Course Title	Credits
1	ADARAD351	Architectural Design III	8
2	ADARCM352	Construction & Materials III	5
3	ADARAG353	Architectural Drawing & Graphics III	4
4	ADARAS354	Architectural Structures III	3
5	ADARHA301	History of Architecture II	2
6	ADARAS302	Architectural Services I	3
7	ADARTC355	Theory and Critical Thinking II	3
8	ADARRI356	Regional Immersion & Documentation	2
		Total	30

SEMESTER IV

S.no.	Course Code	Course Title	Credits
1	ADARAD451	Architectural Design IV	8
2	ADARCM452	Construction & Materials IV	5
3	ADARAG453	Architectural Drawing & Graphics IV	4

4	ADARAS454	Architectural Structures IV	3
5	ADARHS401	History of Architecture III	2
6	ADARAS402	Architectural Services II	3
7	ADARSP455	Site Planning & Landscape Design	3
		Total	28

SEMESTER V			
S.no.	Course Code	Course Title	Credits
1	ADARAD551	Architectural Design V	8
2	ADARWD552	Working Drawing & Details	5
3	ADARAS553	Architectural Structures V	3
4	ADARHS501	History of Architecture IV	2
5	ADARAS502	Architectural Services III	3
6	ADARTC554	Theory and Critical Thinking III	3
7		Elective- I	2
		Total	26

SEMESTER VI			
S.no.	Course Code	Course Title	Credits
1	ADAR302	Architectural Design VI	10
2	ADARCM652	Construction & Materials V	5
3	ADARAS653	Architectural Services IV	3
4	ADARCH654	Contemporary History/Seminar	2
5		Elective- II	2
6	ADARRM655	Research Methodology	3
7	ADARTP601	Town Planning	2

8	ADARNS656	*National Study Tour/ Project	2
		Total	29

SEMESTER VII			
S.no.	Course Code	Course Title	Credits
1	ADARAD751	Architectural Design VII	10
2	ADARCM752	Construction & Materials VI	5
3	ADARDS753	Architectural Dissertation	6
4	ADARES701	Estimations & Specifications	3
5	ADARSG754	Sustainability & Green Buildings	2
6	ADARPD755	Professional Development	2
		Total	28

SEMESTER VIII			
S.no.	Course Code	Course Title	Credits
1	ADARPT851	Practical Training	18
		Total	18

SEMESTER IX			
S.no.	Course Code	Course Title	Credits
1	ADARAD951	Urban Design	12
2	ADARAT952	Architectural Thesis I	5

3	ADARBE901	Building Economics & Project Management	3
4	ADARPP902	Professional Practice I	2
5	ADARBR953	Building Resilience & Disaster Management	2
6		Elective III	2
		Total	26

SEMESTER X			
S.no.	Course Code	Course Title	Credits
1	ADARAT1051	Architectural Thesis II	20
2	ADARPP1001	Professional Practice II	3
3		Elective IV	2
		Total	25

DETAILED SYLLABI

SEMESTER-I

ADARAD151	Architectural Design- I	L	T	S	P	C
Version	1.0	2	0	6	0	8
Category of Course	Major (Studio)					
Total Contact Hours						
Pre-Requisites/ Co-Requisites	Basic Drawing Skills, Logical thinking					

Course Perspective

This course serves as an essential introduction to the principles and practices of architecture, fostering both creative and analytical skills. This course emphasizes the exploration of space, form, and function, encouraging students to develop a keen sense of observation and understanding of design fundamentals. Through a blend of theoretical study and application, learners will engage with key design concepts, such as balance and proportion. Hands-on projects will facilitate the transition from abstract ideas to tangible designs, utilizing techniques in sketching and physical modelling. Students will be challenged to analyse sites critically, considering environmental, cultural, and social factors that influence design decisions. Collaborative exercises and presentations will cultivate effective communication skills, vital for articulating design intentions. By the end of the semester, students will possess a foundational skill set, preparing them for more advanced architectural studies. This course aims not only to build technical proficiency but also to inspire a lifelong passion for architecture and its transformative potential within society.

Course Outcomes

By the end of the course, students will be able to:

CO1: Explain and apply the basic principles of design in two- and three-dimensional form development.

CO2: Demonstrate an understanding of spatial perception, and apply concepts of scale and proportion in introductory design tasks.

CO3: Integrate anthropometric data in designing functional spaces considering human dimensions and ergonomics.

CO4: Produce architectural drawings and models using 2D and 3D representation techniques for communicating design ideas.

CO5: Enhance visual thinking and creativity through class exercises on spatial memory, collage-making, and abstraction.

Course Content

Unit I: Fundamentals of Design and Perception

Elements and principles of design, point-line-plane-volume, visual balance, rhythm and harmony, visual hierarchy, positive and negative space, figure-ground relationship, spatial perception, spatial memory exercises, introduction to sketching and freehand drawing, observation-based drawings, basic design vocabulary

Unit II: Scale, Proportion, and the Human Body

Anthropometry, human dimensions and proportion systems, ergonomics (basic), scale and measurement, human activities and body mapping, full-scale spatial exploration, personal spatial envelope, understanding human experience in space, proportion in abstract compositions, modules and grids

Unit III: Form, Material, and Sensory Awareness

Material exploration (paper, cardboard, clay), tactile and sensory mapping, inside-outside relationships, solid and void, open and enclosed spaces, form abstraction, massing exercises, texture and surface, basic model-making techniques, structural logic in mock-ups, experiential design exercises, exploration of natural light and ventilation, light-shadow modeling

Unit IV: Abstraction, Representation, and Expression

2D representation techniques (plans, sections, elevations), 3D views and diagrams (axonometric, isometric), conceptual diagrams, collage and mixed media abstraction, iterative design development, drawing from memory and emotion, personal design narratives, visual storytelling, final design proposal, mock-up/model refinement, portfolio preparation

Learning Experience:

Inside: The inside classroom learning experience for first-semester Architectural Design students is dynamic and interactive, fostering a collaborative environment where creativity thrives. Students engage in lectures that introduce fundamental design principles, accompanied by visual presentations and discussions that encourage critical thinking. Hands-on activities, such as material exploration, allow students to apply theoretical concepts in real-time, enhancing their understanding of spatial relationships and design aesthetics. Group critiques provide opportunities for peer feedback, cultivating a supportive community where students can refine their ideas and techniques. This interactive approach not only deepens their design knowledge but also builds essential skills in communication and collaboration, preparing them for future architectural challenges.

Outside: The outside classroom learning experience complements the theoretical foundation established indoors by immersing students in real-world architectural contexts. Field trips to local architectural sites and construction projects expose students to various design styles and materials, enriching their understanding of how concepts are implemented in practice. Engaging with architects and industry professionals during site visits allows students to ask questions and gain insights into the design process and project challenges. Additionally, students may participate in community design workshops, where they can apply their skills to real-life problems, fostering a sense of social responsibility. This hands-on exposure enhances their learning by bridging the gap between theory and practice, inspiring them to think critically about their future contributions to the field of architecture.

Textbooks

Ching, Francis D. K., “Architecture: Form, Space, and Order”, Wiley and Sons

Suggested Readings

1. Wallschlaeger, C and Snyder, S.B., “Basic Visual Concepts and Principles for Artists, Architects and Designers”, McGraw Hill.
2. Laseau, P, “Graphic Thinking For Architects and Designers”, John Wiley and Sons

Open Educational Resources (OER)

1. <https://guides.lib.berkeley.edu/design>
2. <https://biomimicry.org/inspiration/what-is-biomimicry/>

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2			2			3	2			
CO2	2			1			3	3			1
CO3	3			2			3	3	1	1	1
CO4	2	3		3			2	3			2
CO5	3	2		3	2		3	3	3	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADARCM152	CONSTRUCTION AND MATERIALS -I	L	T	S	P	C
Version	2.0	1	0	3	0	4
Category of Course	Major (Studio)					
Total Contact Hours	60					
Pre-Requisites/ Co-Requisites	Basic understanding of materials and drafting skills					

Course Perspective

The course for first-semester provides a critical foundation for understanding the essential components and processes involved in constructing buildings. This course explores various building materials, their properties, and applications, emphasizing how material choice affects structural integrity, sustainability, and aesthetic appeal. Students will gain insight into traditional and modern construction techniques, learning how to evaluate the appropriateness of materials based on factors such as climate, cost, and environmental impact. Through hands-on projects and laboratory sessions, learners will engage with materials directly, experiencing their textures, weights, and behaviours first hand. The course will also cover key concepts in building systems, including structural frameworks, insulation, and finishing techniques, highlighting the interplay between design and functionality. By analysing case studies, students will learn to appreciate real-world applications of construction principles and the importance of adhering to safety standards and building codes. Collaborative group projects will foster teamwork and problem-solving skills, preparing students for future challenges in the field. By the end of the semester, students will have developed a robust understanding of building construction fundamentals, setting the stage for advanced studies in architecture and engineering.

Course Outcomes

Upon completion of the course the learner will be:

CO1: Understanding elementary building materials through site visits, reports, and presentations.

CO 2: Applying knowledge of building materials by performing market surveys and preparing detailed reports.

CO 3: Creating detailed drawings and presentation sheets.

CO 4: Creating detailed models of various building materials

Course Content

Unit I: Introduction to basic building materials and tools

15 Hrs.

- **A-Types of tools used in construction.**
- **B-Clay and Clay products:** mud blocks, Earth stabilized blocks, Burnt Bricks, terracotta tiles, brick ballast and surkhi, flyash blocks, concrete blocks etc.

- **C-Types of Bricks:** Class, Properties, usage and applications. Their types physical characteristics, specifications, manufacturing, testing, etc. Specific purposes like walls, flooring, cladding, tiling, etc.
- **D-Other building materials:** such as Lime, Mud, Sand and Cement: availability, manufacturing, composition, physical and chemical properties, types, uses etc.

Unit II: Stone and Stone Masonry

15 Hrs.

- **A-Stones for specific purposes** like walls, flooring, cladding, tiling, etc. Their physical characteristics, types, specifications, uses etc.
- **B-Types of stone** used in building construction, Rubble and Ashlar masonry

Unit III: Brick Masonry & masonry work techniques

15 Hrs.

Walls and piers with bonding techniques of brick masonry including foundations, E.g., for brick masonry -Header and Stretcher bond, English & Flemish bonds, rat trap bond, L- junctions, T-junctions etc.

Unit IV: Roofing and Spanning

15 Hrs.

Openings in masonry walls using spanning and load bearing techniques of corbelling, coping, arches, lintels and sills, domes, vaults etc.

Learning Experience

Inside: The course focuses on developing knowledge about the structural strengths and physical properties of different building materials, as well as the process and techniques involved in masonry construction. Through a combination of theoretical study and hands-on learning, students will gain practical skills in working with basic materials commonly used in the construction industry.

Outside: Students undertake regular visits to construction sites, market surveys and case studies to supplement and update the knowledge base.

Assignments are in the form of market surveys for building materials and study of latest building materials in the building construction industry. Students are also required to do case studies of architectural and interior projects where the above-mentioned materials have been innovatively used.

Textbooks

1. Rangwala, S. C., “Engineering Materials (Material Science)”, Charotar Publishing House.

Suggested Readings

1. Agarwal, A., “Mud: The Potentials of Earth based Material for Third World Housing”, IIED
2. HUDCO, “All you wanted to know about Soil Stabilized Mud Blocks”,
3. Barry, R. Construction of Buildings, East West Press Pvt. Ltd., New Delhi, 1999

4. McKay, W.B.; Building Construction (Vol. I, II, III & IV), Orient Longman, London, 1988
5. Punamia B.C., Building Construction, Laxmi Publications (P) Ltd, New Delhi, 1993
6. Chudley, R.; Building Construction Handbook, Butterworth Heinemann, Oxford, 1988

Open Educational Resources (OER)

1. <https://www.rgm cet.edu.in/assets/img/departments/CIVIL/materials/R19/2-2/BT/unit-2.pdf>

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAG153	Architectural Drawing & Graphics I	L	T	P	S	C
Version 2.0	2025-26	1	0	0	4	5
Category of Course	Major					
Total Contact Hours	75 Hours					
Pre-requisites/Exposure	Basic visualization and coherent thinking					
Co-requisites	Foundational drawing and sketching skills					

Course Perspective

This foundational course introduces students to the visual and graphic language of architecture. It emphasizes the development of essential skills in **manual drafting, technical drawing, freehand sketching**, and an introduction to **digital graphic tools**. Students will learn how to effectively communicate architectural ideas through accurate and expressive drawings.

Through explorations in **scale, proportion, spatial representation**, and **perspective**, the course lays the groundwork for architectural visualization. It cultivates both technical precision and creative expression via iterative studio-based exercises, critiques, and hands-on learning. The course supports students in developing a strong base for future architectural design and communication courses.

Course Outcomes (COs)

CO Code	Course Outcome
CO1	Understand the fundamental principles of architectural drawing tools, sheet layout, lettering, and standard conventions.
CO2	Apply concepts of scale, proportion, and dimensioning to create precise and legible architectural drawings.
CO3	Create accurate orthographic projections (plans, elevations, sections) from three-dimensional forms using drafting techniques.
CO4	Analyze solid geometries and sectional views to produce 2D representations using appropriate line weights and hatching standards.

Course Content

Unit I: Introduction to Drafting and Lettering

- Introduction to architectural drawing as a communication tool.
- Overview: T-square, set squares, compass, scale ruler, French curves, drafting pencils, etc.
- Importance and methods of maintaining clean, legible sheets.
- Introduction to freehand architectural lettering: Techniques for consistent letter height, spacing, alignment.

- **Sheet layout standards:** Margins, sheet formatting, title blocks, legends, and north arrows, Standard sheet sizes and orientations.

Unit II: Drawing Fundamentals

- Understanding basic elements of architectural drawing: Point, line, plane, volume, texture, and tone.
- Types of lines used in architectural graphics: Construction lines, object lines, hidden lines, centre lines.
- Concept of architectural scale: Difference between numerical and graphical scales.
- Reading and converting real-world measurements to scaled drawings.
- Dimensioning standards and annotations.
- **Suggestive Exercise:** Represent the same object at different architectural scales, Include dimensioning and annotation for clarity.

Unit III: Orthographic Projection

- Introduction to orthographic projection and its relevance in architecture.
- Drawing methods for: Plans (top view), Elevations (front and side views), and Sections.
- Converting 3D forms into accurate 2D orthographic representations.
- Alignment of multiple views (plan, elevation, side) on a single sheet.
- Understanding line weights and visibility in orthographic drawings.
- **Suggestive Exercise:** Draft a complex 3D object using orthographic projection, Ensure proper alignment and use of line types.

Unit IV: Geometry of Solids and Sectioning

- Study of basic geometric solids: Cube, cuboid, pyramid, cone, cylinder, and sphere.
- Drawing and construction of 3D solid geometries in 2D.
- Concept and purpose of sectioning in architectural graphics.
- Sectioning techniques: Horizontal, vertical, and inclined sections through solids.
- Representation of material cuts, hatch patterns, and voids.
- Application of line types and line weights: Cut lines, visible edges, hidden edges, and hatching.
- **Suggestive Exercise:** Construct and section solid objects, Apply correct graphic conventions for sectional representation.

Learning Experience:

Inside:

- Observe and study basic 3D models (cube, cone, cylinder, etc.).
- Sketch these models from different angles (freehand/isometric).
- Instructor demonstrates how to “cut” solids – horizontal, vertical, inclined.
- Learn how to show:
 - ✓ Cut surfaces (with thick lines)

- ✓ Hatch patterns for materials
- ✓ Hidden lines
- Practice drawing:
 - ✓ Full orthographic views
 - ✓ Sectional views on drafting sheets
- Group feedback and improvement suggestions

Outside:

- Visit a nearby site/building/playground.
- Choose a simple architectural object (pillar, bench, dome, etc.).
- Sketch it on-site with notes about material and form.
- Back in studio, create:
 - Orthographic drawings from your field sketch
 - sectional view showing the “inside” using proper hatching and lines
- Display all drawings in class for a “Gallery Walk”
- Present your work and get peer feedback

Textbooks & References

Prescribed Textbook:

- *Engineering Drawing* – N.D. Bhatt

Suggested Readings:

- *Engineering Drawing* – R.K. Dhawan

Open Educational Resources (OER):

- [Orthographic Projection - CoDesign Collaborative](#)

Mapping /Alignment of COs with POs

CO / PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7
CO1	-	2	1	3	-	1	1
CO2	2	3	-	2	-	-	-
CO3	3	-	1	-	2	1	1
CO4	3	3	-	2	2	1	-

1 – Low correlation; 2 – Moderate correlation; 3 – Strong correlation

Mapping /Alignment of COs with PSOs (Program Articulation Matrix)

CO / PSO	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	3	2	-	-	1
CO2	-	3	2	1	1
CO3	3	3	-	1	1
CO4	3	-	2	1	-

1 – Low correlation; 2 – Moderate correlation; 3 – Strong correlation

Correlation Matrix (Correlation between COs with POs/PSOs)

COs	PO 1	PO 2	PO3	PO 4	PO 5	PO6	PO 7	PSO 1	PSO2	PSO 3	PSO4	PSO5
CO1	-	2	1	3	-	1	1	3	2	-	-	1
CO2	2	3	-	2	-	-	-	-	3	2	1	1
CO3	3	-	1	-	2	1	1	3	3	-	1	1
CO4	3	3	-	2	2	1	-	3	-	2	1	-

1 – Low correlation; 2 – Moderate correlation; 3 – Strong correlation

Evaluation Scheme

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAS154	ARCHITECTURAL STRUCTURES-I	L	T	S	P	C
Version	2.0	1	0	2	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Retain a strong grasp of basic fundamentals and critical thinking skills that enable them to consistently and successfully apply Structural Engineering principles within their chosen career path.					

Course Perspective:

The course provides a foundational understanding of the principles governing the design and analysis of structural systems in architecture. This course introduces essential concepts such as load distribution, material behaviour, and structural integrity, enabling students to grasp how various forces impact buildings. Through lectures, hands-on activities, and collaborative projects, students will explore different structural types, including beams, columns, and trusses, while learning to evaluate their suitability for specific design scenarios. Emphasis will be placed on the relationship between aesthetics and functionality, encouraging students to consider how structural elements can enhance architectural expression. By engaging in practical exercises, students will develop skills in creating basic structural models and analysing their performance. By the end of the semester, students will have gained a solid understanding of the fundamentals of structural design, laying the groundwork for more advanced studies in architecture and engineering.

Course Outcomes:

On completion of the course the learner will be:

CO1: Understanding the basic principles of structural mechanics as a foundation for studying structural design.

CO2: Analysing the composition and resolution of forces to understand their effects on structural systems.

CO3: Evaluating the equilibrium of forces and analyse support reactions to understand their role in maintaining structural stability.

CO4: Calculating concepts of centroid, centre of gravity, and moment of inertia.

Course Content:

Unit 1: Fundamentals of Force Systems and Equilibrium 8 hours

- A-Force & its units
- B- Couple - Moment & Arm of a couple
- C-Equilibrium of Forces
- D-Conditions of equilibrium

➤ **Unit 2: Centroid, Centre of Gravity, and Moment of Inertia 7 hours**

- Definition, Centroid and Centre of Gravity
- Methods of finding out C.G. & Centroid of plane figures; Symmetrical sections, unsymmetrical sections, solids by different methods-Geometrical, By moments, & Graphical method.
- Moment of Inertia
- Section modulus
- Radius of Gyration
- F-MI of plane lamina
- G-MI of Composite sections.

Unit 3: Support Reactions and Beam Loading Analysis 15 hours

- A- Support Reactions.
- B- Types of loading- point load, uniformly distributed load, uniformly varying load.
- C-Method for the reaction of beams or frames, and trusses
- D-Types of end supports of beams & frames – simple supported, Hinged, overhanging beams
- E-Beams subjected to Moments

Unit 4: Analysis of Trusses and Frames 15 hours

- A- Introduction of trusses and frames
- B- Types of Trusses
- C-Analysis of trusses using the method of joints, method of sections, and graphical method.

Learning Experience Inside:

In the first semester of Structural Design, students engage in a dynamic classroom environment where theoretical concepts come to life through interactive lectures and hands-on activities. The curriculum emphasizes foundational principles such as load calculations, material properties, and design codes. Through collaborative projects, students analyze real-world case studies, fostering critical thinking and problem-solving skills. Visual aids, including software simulations and 3D models, enhance understanding, while group discussions encourage peer learning and the exchange of ideas.

Outside:

Complementing the indoor learning, outside classroom experiences play a crucial role in the Structural Design curriculum. Students participate in site visits to local construction projects, allowing them to observe structural systems in action and understand the practical implications of their studies. Workshops with industry professionals provide insights into current practices and emerging technologies. Additionally, students may engage in fieldwork, collecting data and assessing materials, which reinforces classroom concepts and encourages a hands-on approach to learning that bridges theory and practice.

Textbooks

1. Applied Mechanics by R.S. Khurmi, S.chand Publications
2. Structure Mechanics for Architects by Prof. Harbhajan Singh, Abhishek Publications, Chandigarh.

Reference Books

1. Strength of Materials by S.Ramamrutham, Dhanpat Rai & Sons, New Delhi.Mechanics of Materials by Dr. B.C. Punmia, Ashok Kumar Jain, Arun Kumar Jain, Laxmi Publications (P) Ltd., New Delhi
2. Mechanics for Engineers, Statics, Ferdinand P. Beer & E. Russell Johnston, Jr. Mc.Graw Hill, International Student Edition.

Open Educational Resources (OER)

1. https://www.researchgate.net/profile/BoshraEltaly/publication/331021482_Theory_of_Structure_1/links/61632210e7993f536cba4386/Theory-of-Structure-1.pdf

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	2	3	1	1	2	1	3	2	2	2	1
CO2	2	3	1	1	2	1	3	3	3	2	2
CO3	3	3	2	1	2	1	3	3	3	3	2
CO4	3	3	2	2	2	2	3	3	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance

Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARHS15 5	HUMAN SETTLEMENT & SOCIOLOGY	L	T	P	S	C
Version	2.0	1	0	0	2	3
Category of Course	Major (Theory)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Social Awareness, Cultural Understanding, Contextual Thinking					

Course Perspective

This course explores the evolution and transformation of traditional human settlements through sociological and spatial perspectives. It examines how socio-cultural, economic, geographical, and environmental factors have shaped both formal and informal settlements throughout history. Students will study early human civilizations to better understand the historical context of architecture and built environments, focusing on space, form, structure, and community dynamics. Learning methods include literature reviews, case studies, and site visits, enabling students to critically analyse the relationship between human behaviour, societal needs, and spatial organization.

Course Outcomes

CO 1: Describe the historical evolution of human settlements from ancient times and *identify* major typologies and patterns.

CO 2: Explain the influence of social, cultural, economic, and political factors on the formation and transformation of human settlements.

CO 3: Apply basic sociological theories and concepts to *analyze* the relationship between society, behaviour, and built form.

CO 4: Evaluate the impact of planning and architectural decisions on community life, public space, and social inclusiveness.

CO 5: Propose design strategies or planning interventions that respond to the needs of different social groups and promote sustainable, culturally sensitive human settlements.

Course Content

Unit I: Sociological Foundations in Architecture of Hours 10

No.

- Introduction to sociology; society, culture, institutions; relevance to built environments
 - Explain the basic sociological concepts relevant to architecture (e.g., family, community, social stratification).
 - Relate sociological concepts to spatial organization and the use of space in different cultures.
 - Interpret how social structures shape human interactions with built environments.
- Determinants of Human Settlements: Climate, geography, economy, politics, technology, defense, religion
 - Identify natural and human factors that influence settlement formation and growth.
 - Examine case studies of how determinants like climate and politics have shaped specific cities or communities. Assess the success or failure of settlements in adapting to these determinants.
- Social Behavior and Spatial Patterns
 - Territoriality, privacy, crowding, hierarchy, gendered spaces, behavioral mapping
 - Conduct basic spatial-behavioral studies like user observation and mapping.
 - Interpret the relationship between human behavior and space usage in public and domestic settings.
 - Critique existing spaces (e.g., urban housing, markets, religious areas) in terms of sociological impact.

Unit II: People, Cities and Modern World Hours: 10

No. of

- **Industrialization and Urban Growth; Understanding the** rise of the industrial city: Manchester, Chicago, Kolkata. Migration, class divisions, and urban labor, Impact on housing and infrastructure, Transportation and technological advancements.
- **Colonial Cities and Global Urbanism;** Understanding Colonial urban models: gridiron plans, segregation, cantonments; case studies: New Delhi, Casablanca, Saigon, Nairobi, Postcolonial challenges and hybrid urban identities
- **Modernist Urban Visions;** CIAM, Le Corbusier, and the Radiant City, Garden Cities, Broadacre City, and urban utopias; Chandigarh and Brasilia as planned modernist cities
- **Urban Crisis and Responses;** Urban sprawl, slums, informal settlements, Urban renewal and gentrification, Sustainable and resilient city models, Role of community participation in planning
- **Globalization, Technology, and Contemporary Cities;** Smart cities and digital infrastructure, The rise of megacities and metropolitan regions; Case studies: Tokyo, Seoul, New York, Mumbai, Climate-responsive and people-centric design.

Unit III: Evolution and Development of Human Settlements
Hours: 25

No. of

- **Prehistoric Age Introducing concepts of culture and civilization**
 - Paleolithic and Neolithic culture
 - Art forms and evolution of shelter Megaliths
 - Agricultural revolution; and its impact on culture and civilization with examples from Carnac and Stonehenge.
- **Birth of Civilization**
 - In reference to the Asia-minor region with nascent cities like Jericho, Catalhoyuk, and Hattasus etc.
- **Ancient River Valley Civilizations: Egypt**
 - Landscape and culture of Ancient Egypt- history - religious and funerary beliefs and practices - monumentality tomb architecture: evolution of the pyramid from the mastaba – Great Pyramid of Cheops, Gizeh etc.
 - Temple architecture: mortuary temples and cult temples - Temple of Ammon Ra, Karnak, Khons - Temple of Abu Simbel (Rock Cut) etc.
- **Ancient River Valley Civilizations: Mesopotamia**
 - Urbanization in the fertile crescent - Sumerian, Babylonian, Assyrian and Persian culture, Evolution of city-states and their character, law and writing, theocracy and architecture - Ninveh, Khorsahbad, Marie, Babylon etc.
 - Evolution of the ziggurat - Ziggurat of Ur, Urnamu etc., Evolution of the palaces - Palace of Sargon, Khorsabad - Palace at Persepolis.
- **Ancient River Valley Civilizations; Indus Valley Civilization**
 - Particularly in reference to the town planning principles exemplified with examples from Mohenjo-Daro and Harappa.

- *The Aryan civilization*
 - With its emphasis on the Vedic town plan, its motifs and patterns. The brick altars and their significance.

Learning Experience

Inside: Students explored the theoretical foundations of human settlements and sociology through lectures, discussions, and visual presentations. Topics included ancient civilizations and their built environments, linking sociological theories with spatial organization, cultural influences, and historical context. Interactive sessions, debates, and case study analyses deepened understanding of how architecture reflects social structures. The course combined curated readings and digital resources, allowing learners to connect abstract concepts with tangible examples of urban planning. Collaborative activities such as map analyses and diagrammatic representations fostered critical thinking and problem-solving, ultimately preparing students to analyze human settlements with both theoretical insight and practical application.

Outside: Learning extended into field visits, independent research, and hands-on assignments. Students observed local urban and rural settlements to study how geographical, cultural, and economic factors shape community spaces. Field studies included sketching, photography, and informal interviews, enabling a practical understanding of behavioral mapping and spatial usage. Collaborative projects on settlement evolution and term papers on urban development under social influences further enriched their experience. These real-world interactions bridged theory and practice, fostering an appreciation for sustainable, culturally sensitive design. Overall, such immersive activities honed observation skills, critical analysis, and an empathetic understanding of human environments.

Suggested Readings/ Textbooks

- The Evolution of Human Settlements from Pleistocene Origins to Anthropocene Prospects by Bowen, William M., Gleeson, Robert E.
- History of human settlements and urban design from the early ages to the end of the 19th century (Council of Planning Librarians. Exchange bibliography) Unknown Binding – 1969 by Gideon Golany
- Evolution of human settlements in India by S.P. Chatterjee
- Human Settlements and Planning for Ecological Sustainability: The Case of Mexico City by Keith Pezzoli John Friedmann.
- Contemporary Sociology by M. Francis Abraham, Oxford University Press: New Delhi.
- An Introduction to Sociology by Vidya Bhushan and D.R. Sachdeva, Kitab Mahal: Allahabad.
- Sociology: A Systematic Introduction by Harry M. Johnson, Allied Publishers: New York.
- Sociology of Change and Development by G.R. Madan and Amit Agarwal, Vivek Prakashan: Delhi.
- Indian Society and Culture – Continuity & Change by Nadeem Hasnain, Jawahar Publishers and Distributors: New Delhi.
- Principles of Population Studies by Asha A. Bhende & Tara Kanitkar, Himalaya Publishing House: Mumbai.

Open Educational Resources (OER)

- "Human Settlements: Past, Present, and Future" by Open University
- "Sustainable Urban Development: Analysis and Case Studies" by Coursera
- "Informal Settlements and Sustainable Development" by UN-Habitat

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2		2				3				
CO2			3		2	2	2		2		
CO3	2		3	2			2	2	2		
CO4	2		3		3	2			3	2	
CO5	3	2			3	3		3		2	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/Presentation/Viva	iCloud/Academia (online)

*(It is compulsory for a student to secure 50% marks in the Internal and End Term Practical Exam and Viva Voce separately to secure the minimum passing grade as per COA & University regulations.)

Course Code ADAREE101	Course Title Ecology & Environment	L	T	P	S	C
Version	2.0	2	0	0	0	2
Category of Course	Major					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Basics of environment					

Course Perspective:

The course provides a foundational understanding of the relationship between architecture, environmental sustainability, and disaster resilience. This course covers essential topics such as ecological principles, resource management, and the impact of climate change on built environments. Students will explore strategies for sustainable design and urban planning while learning how to assess and mitigate risks associated with natural disasters. Through case studies and practical exercises, they will develop critical skills in disaster preparedness and response. By the end of the semester, students will be equipped to contribute to resilient and sustainable architectural practices in an evolving environment.

Course Outcomes (COs):

- CO1.** Understanding environmental issues to develop a deep understanding of how to contribute to a healthy and safe environment.
- CO2.** Applying techniques for environmental protection, recognizing that a clean, healthy, safe environment is crucial for the sustainability of all species.
- CO3.** Analysing environmental concerns at both national and international levels, focusing on the formulation of protection acts and sustainable development policies.
- CO4.** Evaluating the impacts of rapid industrialization, consumerism, and over-exploitation of natural resources on the degradation of the earth.

Course Content:

UNIT I-Environment and Natural Resources:

8 Hours

- A. Multidisciplinary nature of environmental sciences; Scope and importance; Need for public awareness.
- B. Land resources; land use change; Land degradation, soil erosion and desertification.
- C. Deforestation: Causes and impacts due to mining, dam building on environment, forests, biodiversity and tribal populations.
- D. Water: Use and over-exploitation of surface and ground water, floods, droughts, conflicts over water (international & inter-state). Energy resources: Renewable and nonrenewable energy sources, use of alternate energy sources, growing energy needs, case studies. Carbon Footprints

UNIT II- Ecosystems and Biodiversity: 7 Hours

- A.** A-Ecosystem: Definition and Structure and function of ecosystem; Energy flow in an ecosystem: food chains, food webs and ecological succession.
- B.** B-Case studies of the following ecosystems:
 - Forest ecosystem
 - Grassland ecosystem
 - Desert ecosystem
 - Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries)
- C.** C-Biological diversity: genetic, species and ecosystem diversity; Biogeographic zones of India; Biodiversity patterns and global biodiversity hot spots ; India as a mega-biodiversity nation; Endangered and endemic species of India; Threats to biodiversity: Habitat loss, poaching of wildlife, man-wildlife conflicts, biological invasions; Conservation of biodiversity: In-situ and Ex-situ conservation of biodiversity; Ecosystem and biodiversity services: Ecological, economic, social, ethical, aesthetic and Informational value.

UNIT III- Environmental Pollution and Environmental Policies: 10 Hours

- A.** A-Environmental pollution: types, causes, effects and controls; Air, water, soil and noise pollution nuclear hazards and human health risks; Solid waste management: Control measures of urban and industrial waste; Pollution case studies.
- B.** B-Sustainability and sustainable development; Climate change, global warming, ozone layer depletion, acid rain and impacts on human communities and agriculture;
- C.** Environment Laws: Environment Protection Act; Air (Prevention & Control of Pollution) Act; Water (Prevention and control of Pollution) Act; wildlife Protection Act; Forest Conservation Act; Nature reserves, tribal populations and rights, and human wildlife conflicts in Indian context. Fundamentals and Application of ESG (Environment Social Governance).

UNIT IV: Human Communities and the Environment and Field work: 5 Hours

- A.** Human population growth: Impacts on environment, human health and welfare; Resettlement and rehabilitation of project affected persons; case studies; Disaster management: floods, earthquake, cyclones and landslides; Environmental movements: Chipko, Silent valley, Bishnoi's of Rajasthan; Environmental ethics: Role of Indian and other religions and cultures in environmental conservation; Environmental communication and public awareness, Recent Case studies related to earthquakes, Floods, Famine, Water Crisis/Scarcity, Smog, Water contamination at National and International Level.
- B.** Visit to an area to document environmental assets: river/ forest/ flora/fauna, etc.
- C.** Visit to a local polluted site-Urban/Rural/Industrial/Agricultural.
- D.** Study of common plants, insects, birds and basic principles of identification. Study of simple ecosystems-pond, river, Delhi Ridge, etc.

Learning Experience

Inside: In the first semester of Environment Studies & Disaster Management, students immerse themselves in a comprehensive exploration of environmental systems and disaster response strategies. Classroom sessions blend lectures, multimedia presentations, and interactive discussions, fostering a deep understanding of ecological principles, climate change, and risk assessment. Through case studies of past disasters, students analyze response frameworks and recovery efforts, enhancing their critical thinking and analytical skills. Collaborative group activities encourage students to develop disaster preparedness plans and engage with environmental policies, creating a participatory learning atmosphere.

Outside: To enrich their understanding, students partake in outdoor learning experiences that connect theory to real-world applications. Field trips to local ecosystems and affected disaster zones allow students to observe environmental challenges first hand and assess the effectiveness of management strategies. Workshops with local disaster management agencies offer insights into emergency preparedness and community resilience. Additionally, students may engage in community service projects focused on environmental restoration or disaster readiness, fostering a sense of responsibility and active participation in addressing societal challenges.

Textbooks

1. Kaushik and Kaushik, Environmental Studies, New Age International Publishers (P) Ltd. New Delhi.

Suggested Readings

1. A.K. De, Environmental Chemistry, New Age International Publishers (P) Ltd. New Delhi.
2. S.E. Manahan, Environmental Chemistry, CRC Press.
3. S.S Dara and D.D. Mishra, Environmental Chemistry and Pollution Control, S.Chand & Company Ltd, New Delhi.
4. R. Gadi, S. Rattan, S. Mohapatra, Environmental Studies Kataria Publishers, New Delhi.

Programme and Course Mapping												
CO	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	—	3	—	3	—		3	2	—	—	—
CO2	—	3	—	—	3	—		—	3	—	—	2

CO3	–	–	3	–	2	2	–	–	3	2	–
CO4	3	–	–	–	3	–	2	–	–	3	–
CO1	1	–	3	–	3	–	3	2	–	–	–
1=lightly mapped 2= moderately mapped 3=strongly mapped											

Evaluation Scheme

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARTC156	Theory and Critical Thinking	L	T	S	P	C
Version	2.0	0	0	3	0	3
Category of Course	Major					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	None					

Course Objectives:

This course aims to:

1. Introduce the idea of architecture as a cultural, sensory, and spatial experience.
2. Enable students to observe, think, and talk about architecture in informed ways.
3. Build a basic architectural vocabulary essential for design education.
4. Initiate a habit of reflective writing and visual description.

Course Outcomes:

CO1: Identify and recall fundamental architectural terms, elements, and basic spatial concepts such as space, form, light, and material.

CO2: Describe and explain spatial experiences using sensory and emotional observations from built environments.

CO3: Apply architectural vocabulary to **interpret** everyday spaces through sketching, storytelling, and reflective writing.

CO4: Analyse simple architectural texts and **evaluate** spatial experiences by forming personal responses and articulating viewpoints.

Course Content:

UNIT 1: Introduction to Architecture and Theory 15 hours

- What is architecture? Basic definitions and scope.
- Architecture as shelter, space, experience, memory.
- What is theory? The role of reading, writing, and thinking in architecture.

Activity: Campus observation walks + discussion on “What is a good space?”

UNIT 2: Seeing, Sensing, and Describing Space 15 hours

- Elements of architectural experience: light, material, texture, colour, proportion.
- Personal vs. public space, comfort and discomfort.
- Vocabulary of space: 20 key terms explained through drawings, models, and images.

Activity: Sketch + write: “My favourite place and why.” Vocabulary wall exercise.

UNIT 3: Thinking, Reading, and Reflecting

15

hours

- Reading short, accessible texts from architectural thinkers.
- Interpreting buildings: function, meaning, atmosphere.
- Speaking and writing: Journaling, oral storytelling, response essays.

Activity: Weekly journal entries + Read-Aloud and Reflect sessions.

Learning Experience:

Inside Classroom:

Outside Classroom:

Textbook:

1. Charles Correa – A Place in the Shade
2. Juhani Pallasmaa – The Eyes of the Skin
3. Christian Norberg-Schulz – Genius Loci
4. Le Corbusier – Towards a New Architecture
5. Christopher Alexander – A Pattern Language

Reference Books

Open Educational Resources (OER)

- “Why Architecture Matters” – TEDx
- “Spaces Speak” – Short video series

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	–	3	–	3	–	3	2	–	–	–
CO2	–	3	–	–	3	–	–	3	–	–	2
CO3	–	–	3	–	2	2	–	–	3	2	–
CO4	3	–	–	–	3	–	2	–	–	3	–

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

SEMESTER-II

ADARAD251	ARCHITECTURAL DESIGN-II	L	T	S	P	C
Version	2.0	2	0	6	0	8
Category of Course	Major (Studio)					
Total Contact Hours	120					
Pre-Requisites/ Co-Requisites	Basic Drawing Skills, Understanding of spatial planning					

Course Perspective

The Architectural Design course for second-semester students builds on foundational concepts, focusing on more complex design challenges and critical thinking. This course encourages students to explore the relationship between form, function, and context, fostering a deeper understanding of user experience and site-specific solutions. Through a series of projects, students will engage in the iterative design process, incorporating feedback and refining their ideas. Emphasis will be placed on integrating sustainable practices and innovative materials. Collaborative critiques and presentations will enhance communication skills, preparing students to articulate their design intentions effectively. By the end of the semester, students will be equipped with advanced design skills and a comprehensive perspective on architectural practice.

Course Outcomes

CO1: Identify various shelter typologies and describe key vernacular design principles used across different regions.

CO2: Interpret and explain the relationship between form and function in selected vernacular architecture case studies.

CO3: Demonstrate understanding of local materials, environmental responses, and basic passive design strategies in traditional shelters.

CO4: Apply design principles to create basic shelter models using mud, bamboo, and timber, considering structural and climatic factors.

CO5: Design and develop personalized shelter solutions that incorporate multi-functional spaces, reflecting user needs and contextual appropriateness.

Course Content

Design Problem: Climate-Responsive mono-functional unit or micro-dwelling (15–25 sqm)

Context: Real site (open, rural/urban edge), with basic climate data

Complexity: Low–Medium; functional clarity, site orientation, single user/small group

Special Focus (Material, Construction, Form, Sustainability):

- Mud, bamboo, timber, stone – local and cost-effective
- Load-bearing walls, pitched/sloped roof exploration

- Passive solar orientation, wind flow, light and shadow
- Shelter as memory and metaphor

Unit I: Introduction and Case study:

- Evolution of shelters and typology of vernacular shelters.
- Understanding shelter as response to human needs with cultural and climatic influences.

Unit II: Material and Spatial Understanding

- Mud, bamboo, timber – properties and behavior
- Load-bearing wall systems
- Space planning for personal/domestic use.

Unit III: Functionality and Multi-use Spaces

- Multi-functional spatial arrangements
- Comfort and simplicity in design.

Unit IV: Representation and Final Output

- Sketching and drawing shelters
- 2D drawings (plans, sections, elevations)
- 3D models.

Learning Experience: The course offers a hands-on learning experience where students explore climate-responsive shelter design through case studies, site visits, and material-based model-making. They engage in interpreting vernacular principles, analysing form-function relationships, and experimenting with local materials like mud, bamboo, and timber. Through iterative design processes, peer reviews, and faculty critiques, students develop context-sensitive, small-scale shelter solutions that respond to climate, user needs, and cultural meaning.

Inside: Students will engage in an immersive studio-based learning environment that emphasizes hands-on exploration, critical thinking, and iterative design. Through focused design exercises, case study analyses, and conceptual sketching, they will investigate vernacular shelter typologies and form-function relationships. Studio discussions, faculty-led critiques, and peer reviews will guide students as they translate conceptual ideas into physical models using locally available materials such as mud, bamboo, and timber. Emphasis will be placed on understanding passive design strategies, spatial organization, and user-centered functionality to develop climate-responsive, culturally rooted shelter solutions.

Outside: Students will supplement studio work with site visits to traditional settlements and vernacular dwellings to observe and document real-world examples of climate-responsive design. Field-based sketching, material sampling, and user interaction will deepen their understanding of spatial usage, construction methods, and local building techniques. These experiences will foster sensitivity to context, climate, and community needs, enabling students to draw inspiration from lived environments. Workshops with local artisans or craftspeople

may be integrated to enhance hands-on learning and appreciation of indigenous construction practices.

Textbooks

Ching, Francis D. K., “Architecture: Form, Space, and Order”, Wiley and Sons.

Suggested Readings

1. Watson, Donald, “Time-saver Standards for Building Materials and Systems”, Tata McGraw Hill
2. Wallschlaeger, C and Snyder, S.B., “Basic Visual Concepts and Principles for Artists, Architects and Designers”, McGraw Hill.
3. Laseau, P, “Graphic Thinking for Architects and Designers”, John Wiley and Sons.

Open Educational Resources (OER)

1. Building Typology and Vernacular Architecture - Coursera: This course covers various building types and vernacular architecture principles, with insights into traditional construction methods and regional characteristics.

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				1	2		3		2		
CO2	2			2	2		3		3	2	
CO3	2		2		3		3	3	2	2	2
CO4	3	2	2	2	3	2	3	2	3	2	1
CO5	3	3	2	3	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADARCM252	CONSTRUCTION & MATERIALS-II	L	T	S	P	C
Version	2.0	1	0	3	0	4
Category of Course	Major (Studio)					
Total Contact Hours	60					
Pre-Requisites/ Co-Requisites	Observation, drawing skills, maintaining journals for construction materials.					

Course Perspective

The Building Construction and Materials course for second-semester students delves deeper into the technical aspects of construction practices and material selection. This course focuses on advanced building techniques, structural systems, and the properties of diverse materials, including wood, concrete, steel, and sustainable options. Students will analyze real-world case studies to understand how material choices impact design, cost, and environmental performance. Hands-on workshops will provide practical experience in construction methods and tools. By the end of the semester, students will have gained a comprehensive understanding of the relationship between design and construction, equipping them to make informed decisions in future architectural projects.

Course Outcomes

Upon completion of the course the learner will be:

CO1: Understanding the difference between the components of building substructure and superstructure.

CO2: Analysing building materials, including wood, timber, and bamboo, through site visits, reports, and presentations.

CO3: Evaluating materials through site visits, market surveys, and reports to showcase their properties and applications.

CO4: Creating accurate and detailed construction drawings.

Course Content

Unit I: Sub-structure- Shallow Foundations and plinth **14 Hrs.**

- **A-Introduction to foundations** and plinth along with their role in supporting structures
- **B-Types of shallow foundations:** strip footings, isolated footings, raft foundations etc.

Unit II: Superstructure **16 Hrs.**

- **C-Brick Masonry** and cavity walls including masonry work techniques such as jointing, pointing and plastering.
- **D-Understanding the components of an external wall section**, including insulation, moisture barriers, and finishes from foundation to terrace.

Unit III: Timber and Bamboo

16 Hrs.

Introduction to timber and bamboo as construction materials Structure, Classification, Characteristics, Seasoning, Storage, Defects, Preservation, uses etc.

- **A-Timber products:** Boards- decorative & commercial plywood and boards – types and qualities, ply board, block board, particle board, wood cement board, fiber board, compressed straw board, cement fiber board etc.
- **B-Veneers & laminates**
- **C-Joinery methods**
- **D-Finishes for simple wood work and types of adhesives used.**
- **E-Varnishes:** Natural and synthetic clear varnishes, French polish
- **F-Natural Adhesives** – Animal, Casein, Bituminous.
- **G-Thermoplastic Adhesives** – Polyvinyl Acetate.
- **H-Thermosetting Adhesives & Plastics** - Urea Formaldehyde, Phenol Formaldehyde, Melamine Formaldehyde, Resorcinol Formaldehyde,
- **I-Epoxy Resins, Rubber Adhesive.**
- **J-Details of wooden doors, windows and staircase**
- **K-Details of Lugged & Braced batten doors and windows.**
- **L-Wooden doors:** details of flush paneled & glazed doors, their fastenings, fittings & fixtures.
- **M-Wooden windows:** details of paneled and glazed windows, their fastenings, fittings & fixtures.

Unit IV: Roof Types and Covering, and Roof Finishes

14 Hrs.

- **A-Different types of roofs:** pitched roofs, flat roofs, gable roofs, hip roofs etc.
- **B-Roof covering materials:**
 - **C-Tiles-** Clay Tiles (Country, Allahabad, Mangalore tiles etc.), Concrete Tiles,
 - **Sheets-** Metal sheets, Asbestos Cement sheets (Plain & Corrugated), Aluminium Sheets (Plain & Corrugated), Galvanised Iron Sheets (Plain & Corrugated)
- **D-Stone Slating, Shingles, Thatch.**
- **E-Waterproof membranes**

Learning Experience

Inside: Building Construction & Materials-II is a course designed to provide students with a thorough understanding of the building components, construction techniques, and materials used in building substructure and superstructure. The course will cover topics such as foundation and superstructure systems used in load bearing construction systems. It will also cover roof systems, and the use of wood, timber, and bamboo in construction.

Outside: Through a combination of theoretical knowledge, site visits, reports, and presentations, students will develop practical skills in identifying, analyzing, and applying various building materials and construction techniques.

Textbooks

1. Farrelly, Lorraine, “Basic Architecture 02: Construction + Materiality”, Ava Publishing
2. Agarwal, A., “Mud: The Potentials of Earth based Material for Third World Housing”, IIED,
3. HUDCO, “All you wanted to know about Soil Stabilized Mud Blocks”,

Suggested Readings

1. Watson, Donald, “Time-saver Standards for Building Materials and Systems”, Tata McGraw Hill,
2. Rangwala, S. C., “Engineering Materials (Material Science)”, Charotar Publishing
3. House. Punamia B.C., Building Construction, Laxmi Publications (P) Ltd, New Delhi, 1993

Open Educational Resources (OER)

1. <https://www.scientific.net/book/advanced-building-construction-and-materials-ii/978-3-03826-699-0>

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAG253	Architectural Drawing & Graphics II		L	T	P	S	C
Version	2.0		1	0	0	4	5
Category of Course	Major						
Total Contact Hours	75 Hours						
Pre-requisites/Exposure	Basic visualization and coherent thinking						
Co-requisites	Foundational drawing and sketching skills						

Course Perspective

In Semester 2, this course reinforces and builds upon foundational skills in architectural drawing and graphic communication. It sharpens students' ability to observe, analyse, and represent architectural forms with clarity and expression.

Emphasis is placed on orthographic drawing, sectional representation, geometry of solids, and spatial visualization, alongside continued practice in freehand sketching and sheet composition. The course introduces analytical drawing and basic digital tools to bridge manual and modern graphic methods.

Through studio exercises, critiques, and hands-on tasks, students develop both technical precision and creative thinking—preparing them for more advanced design challenges ahead.

Course Outcomes (COs)

CO Code	Course Outcome
CO1	Understand advanced principles of orthographic projection, sectional representation, and their applications in architectural graphics.
CO2	Apply geometric techniques to represent interpenetration of solids, axonometric views, and surface developments accurately.
CO3	Create one-point and two-point perspective drawings to depict interior and exterior architectural spaces with spatial depth.
CO4	Analyze architectural forms using perspective and sciography to represent constructional clarity, volume, and light.
CO5	Evaluate architectural drawings for visual realism, technical correctness, and graphical effectiveness using manual and basic digital tools.

Course Content

UNIT I: Advanced Orthographic Projections

No of

Hours: 20

- Prepare drawings on **Orthographic Projection of simple solids** in simple positions.
- Prepare drawings on **Orthographic Projection of group of solids** in tilted positions.
- Prepare drawings on **Orthographic Projections of sections**:
 - ✓ Simple sections of solids
 - ✓ Complex solids
 - ✓ Hollow objects and sectional views

UNIT II: Interpenetration & Axonometric Drawing

No of

Hours: 20

- Study **interpenetration of solids** and methods for **development of surfaces and sections**.
- Study the **principles and techniques** of 3D representation:
 - ✓ Axonometric views
 - ✓ Oblique views
 - ✓ Isometric views
- Construct **three-dimensional views** of basic and complex geometrical shapes using these methods.

UNIT III: Perspective Drawing (One Point)

No of

Hours: 20

- Study the **basic terms, principles, types, and techniques** of geometrical perspective drawing.
- Prepare perspectives using:
 - ✓ Measuring point method
 - ✓ Angular perspective
 - ✓ Parallel perspective
- Prepare drawings showing **interior and exterior views** using **one-point perspective**.
- Draw **section perspectives** to represent spatial depth and construction details.

UNIT IV: Perspective Drawing (Two Point) & Sociography)

No of

Hours: 15

- Prepare **two-point perspective drawings** for:
 - ✓ Simple objects
 - ✓ Inclined planes
 - ✓ Cylindrical objects

- ✓ Arches and other circular forms
- **Introduction to Sciography (Shadows):**
 - ✓ Meaning and importance in architecture
 - ✓ Projection of shadows in **plan** and **elevation**
 - ✓ Apply sciography in architectural drawings to enhance realism

Learning Experience:

Inside:

- Practice orthographic projections of single and multiple solids.
- Draw solids in simple and tilted positions with correct line weights.
- Create sectional views of solids, including hollow and complex forms.
- Understand and draw interpenetration of solids and surface developments.
- Construct isometric, oblique, and axonometric views of 3D shapes.
- Learn one-point perspective techniques using measuring point, angular, and parallel methods.
- Draw interiors and exteriors in one-point perspective with section details.
- Practice two-point perspectives for cubes, cylinders, arches, and inclined objects.
- Study how shadows fall in plan and elevation and apply sciography to drawings.
- Use manual and basic digital tools to refine clarity and realism in all drawings.

Outside:

- Visit a real building or architectural space nearby.
- Observe and sketch solids and their combinations in actual structures.
- Identify where sectional views could be applied and draw them later.
- Observe intersecting forms and sketch their relation and surface development.
- Spot and sketch real-life objects in isometric or axonometric angles.
- Choose a room or outdoor space to sketch in one-point perspective.
- Observe depth, scale, and vanishing point alignment during sketching.
- Choose a street or building corner to draw in two-point perspective.
- Observe real shadows at different times and record their direction and size.
- Back in studio, convert outdoor sketches into refined drawings with proper sciography and techniques.

Textbooks

Engineering Drawing, N.D. Bhatt.

Suggested Readings

Engineering Drawing, R.K Dhawan

Open Educational Resources (OER)

1. <https://codesigncollaborative.org/orthographic-projection/#:~:text=An%20orthographic%20projection%20is%20a,%2C%20front%2C%20and%20right%20side.>

Correlation Matrix (COs vs POs & PSOs)

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	-	3	1	2	2	1	-	-	3	2	2	-
CO2	3	3	-	-	2	-	1	3	-	2	-	1
CO3	-	-	1	3	-	1	-	-	3	-	2	2
CO4	3	2	-	-	2	1	1	-	3	2	-	2
CO5	2	3	2	3	2	-	2	3	-	3	2	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAS254	ARCHITECTURAL STRUCTURES-II	L	T	S	P	C
Version	2.0	1	0	2	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Hands-on design experience and skills will be gained and learned through problem sets and a comprehensive design project					

Course Perspective:

This course for second-semester students builds on foundational concepts, delving deeper into the analysis and design of structural systems in architecture. This course focuses on understanding complex structural behaviours, including loads, forces, and material properties, while emphasizing the importance of safety and stability in architectural design. Students will explore advanced topics such as structural mechanics, load paths, and the integration of various materials, including concrete, steel, and timber. Through hands-on projects learners will gain practical experience in designing and analysing structural elements like beams, columns, and frames. Emphasis will be placed on real-world applications, encouraging students to consider both aesthetic and functional aspects of structures. Collaborative workshops and critiques will enhance their problem-solving skills and promote a team-oriented approach to design. By the end of the semester, students will possess a robust understanding of structural principles, preparing them for more advanced studies and professional challenges in architecture and engineering.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Understanding the basic materials used in the R.C.C. construction.

CO2: Analysing the nominal and design mix concrete for the construction industry.

CO3: Evaluating the moment of resistance for different R.C.C. sections.

CO4: Designing and creating reinforced beams, applying relevant principles and calculations.

Course Content:

Unit 1: R.C.C. Introduction

8 hours

- A-Overview of R.C.C. construction
- B-Cement, coarse aggregate, Water and reinforcement materials.
- C-Abram's water-cement ratio law
- D-Stress-strain curves and characteristic strengths of structural steel
- E-Properties of Cement concrete & their impact on the structural strength
- F-Introduction to Nominal mix concrete and Design Mix Concrete.
- G-Characteristic compressive strength of concrete and its determination
- H-Workability of concrete, Slump test, compacting factor test
- I-Compaction and Curing of concrete

- J-Durability of concrete, Gain of strength of concrete with time, Age factor

Unit 2: R.C.C. Theory

7 hours

- A-Theory of R.C.C.
- B-Advantages of RCC
- C-Assumptions in the theory of RCC – Hooke's law
- D-Distribution of stress in Steel & concrete – Modulus of Elasticity
- E-Equivalent area of composite section
- F-Theory of bending of RCC beams – Elastic theory & Ultimate load theory
- G-Limit state method
- H-Stress Strain diagram & Neutral axis & its position
- I-Lever arm
- J-Classification of RCC section
- K-Balanced or economical
- L-Over & under reinforced sections

Unit 3: Working Stress Method

15 hours

- A- Moment of resistance of Singly Reinforced Beams
- B- Design of Singly Reinforced Beams
- C-Design for shear
- D-Bond stress & development length
- E- Theory of Doubly Reinforced Beams: Understanding the theory and design principles of doubly reinforced beams.
- F- Notations and Neutral Axes: Notations used in design, critical neutral axis vs. actual neutral axis.
- G-Steel Beam Theory: Basics of steel beam theory and its application.
- H-Flanged Beams and T-Beams: Theory and design of flanged beams and T-beams, including their neutral axes.
- I-Design of Continuous T-Beams: Design considerations for continuous T-beams.

Unit 4: Limit State Method

15 hours

- A- Concept of Limit state design
- B- characteristics strength of steel & concrete
- C-Design values
- D-Loads & loading conditions.
- E-Limit state of collapse & serviceability
- F-Limit state method vs working stress method, Building code.
- G-Theory & design by Limit state method, of singly reinforced beam
- H-Theory & design by Limit state method, of doubly reinforced beam
- I-Theory & design by Limit state method, of L&T beams

Learning Experience

Inside:

This course provides an ability to have a clear understanding of ethical issues pertaining to engineering and adopt industry standards of ethical behavior. The course is designed to arouse

an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use architectural judgment to draw conclusions and an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Outside:

Complementing the indoor learning, outside classroom experiences play a crucial role in the Structural Design curriculum. Students participate in site visits to local construction projects, allowing them to observe structural systems in action and understand the practical implications of their studies. Workshops with industry professionals provide insights into current practices and emerging technologies. Additionally, students may engage in fieldwork, collecting data and assessing materials, which reinforces classroom concepts and encourages a hands-on approach to learning that bridges theory and practice

Textbooks

1. IS: 883–1984 (reaffirmed 2005), Code of Practice for Design of Structural Timber in Buildings.
2. IS: 1905–1987 (reaffirmed 2002), Code of Practice for Structural Use of Un-reinforced Masonry.
3. R.C.C. Design by B.C. Punmia, Laxmi Publications, New Delhi.

Reference Books

1. R.C.C. Design by Singh H. Abhishek Publications, Chandigarh.

Open Educational Resources (OER)

1. <https://www.tejy.com/step-by-step-process-of-structural-design-of-building/>

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	2	3	1	1	2	1	3	2	2	2	1
CO2	2	3	2	1	2	1	3	3	3	2	2
CO3	3	3	2	1	2	1	3	3	3	3	2
CO4	3	3	2	2	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARHA201	HISTORY OF ARCHITECTURE I	L	T	P	S	C
Version	2.0	1	0	0	1	2
Category of Course		Major (Theory)				
Total Contact Hours		30				

Pre-Requisites/ Co-Requisites	Cultural Awareness, Critical Thinking, Historical Sensitivity
--------------------------------------	---

Course Perspective

The course introduces students to the foundational architectural systems of early civilizations in both the West and the Indian subcontinent. It examines how political power, religious beliefs, and cultural exchanges influenced the evolution of built form and spatial planning. By studying monumental architecture—from the palaces of the Aegean and temples of ancient Greece to the rock-cut caves and stupas of Buddhist and Jain traditions—students will develop an understanding of early construction technologies, stylistic developments, and symbolic expressions. Through lectures, discussions, and site visits, students will develop their visual literacy, enhancing their ability to interpret and critique architectural forms. Assignments will include research projects and presentations, allowing students to explore specific topics in depth. By the end of the semester, students will have acquired a comprehensive overview of architectural history, equipping them with the contextual knowledge necessary for their future studies in design and construction.

Course Outcomes

CO 1: *Identify and describe* architectural characteristics of Aegean, Greek, and Roman civilizations.

CO 2: *Analyze* the evolution of Buddhist, Mauryan, and Jain architecture in ancient India.

CO 3: *Interpret* the symbolic and structural elements of sacred and civic buildings.

CO 4: *Compare* Western and Indian architectural philosophies and spatial organizations.

CO 5: *Document and sketch* early architectural forms with appropriate detail and accuracy.

Course Content

Unit I: Aegean civilization, Greek & Roman civilization of Hours 15

No.

- Aegean civilization: Characteristic features of Aegean and Helladic architecture, with special reference to cities like Troy, Sparta and Mycenae, which formed the basis of Greek civilization.
- Evolution of Greek, Orders in architecture: Doric, Ionic, Corinthian - optical illusions in architecture, Domestic architecture; Public Buildings: Agora, Stoas, Theaters, Bouleuterion and Stadia's.
- Greek temple: evolution and classification - Parthenon and Erechthion
- Geometry and symmetry of individual buildings and their relationship with others based on different organizing principles and conditions of site.
- Roman history: Republic and Empire- Roman religion and the Roman temple - Roman character - lifestyle, Roman urban planning - art and architecture as imperial propaganda: forums and basilicas.
- Orders in architecture: Tuscan and Composite, Domestic architecture –structural forms, materials and techniques of construction.
- Rome: Forum Romanum and other Imperial forums, Enclosure and manipulation of space: Pantheon - Public buildings: Colosseum, Circus Maximus, Thermae of Caracalla.

Unit II: Mauryan Architecture
Hours 05

No. of

- **Origins and Influences:** Exploration of the origin of Buddhist architecture and its early influences; Political history of the Mauryan Empire (Chandragupta to Ashoka).
- **Palatial and Secular Architecture;** Remains of palaces and urban planning at Pataliputra. Wood-based architecture and use of stone in royal buildings.
- **Buddhist Theory:** Understanding the symbolism and structural functions of these architectural forms.
- **Rock-cut and Religious Architecture;** Lomas Rishi and Sudama caves at Barabar Hills. Features of early cave architecture and Buddhist usage. Viharas and chaityas in embryonic forms.

Unit III: Buddhish Architecture
of Hours 05

No.

- **Rock-Cut Architecture:** Transition from Mauryan caves to more elaborate chaitya halls and viharas.
- **Typology of** lats, edict's, stupas, viharas, and chaityas, both in rock-cut or otherwise. The techniques used for rock-cut spaces and free-standing-built masses. The spatial and functional connotations.
- **Key Structures:** Study of significant Buddhist architectural elements such as cave architecture, Sanchi Stupa, Torana's, chaitya halls, and Amravati Stupa.
- **Examination of** Hinayana and Mahayana phases, including early Buddhist Viharas, monasteries, and significant caves in Western Ghats (Karli, Nalanda, Sarnath, Gaya) and Ajanta Caves.

Unit IV: Jain Architecture: Introduction to Jainism; its philosophy
of Hours 05

No.

- **Jain Caves and Dedications; Barabar Caves:** Sudama and Visvakarma caves – earliest surviving Jain shrines. Later Jain rock-cut caves at **Udayagiri-Khandagiri** (Odisha): planning, iconography. Features: ascetic cells, inscriptions, reliefs of Tirthankaras.
- **Stupa and Temple Prototypes;** Jain adaptation of stupa and chaitya forms. Tirthankara relief panels and early shrine markers.

Learning Experience:

Inside: Students engaged with the architectural history of early civilizations through lectures, visual presentations, and diagrammatic analysis. Concepts such as symmetry, geometry, symbolism, and construction techniques were explored through iconic examples like the Parthenon, Pantheon, Sanchi Stupa, and Jain caves. Discussions on political and religious influences deepened students' contextual understanding. Through timelines, sketching exercises, and comparative studies, students developed analytical and visual literacy skills. Debates on architectural philosophies and spatial organization helped reinforce critical

thinking. Classroom learning also emphasized the evolution of styles and typologies, linking Western and Indian architectural traditions in a broader global historical framework.

Outside: Students explored early architecture through field visits, sketching historic buildings, and engaging in hands-on activities like model making and measured drawings. Visits to Buddhist and Jain heritage sites, museums, or ruins helped connect classroom theories with real-world observations. Students documented structures, noted materiality, scale, and detailing, and applied their understanding of spatial and symbolic functions. Creating comparative timelines and infographics enhanced their historical sequencing and research skills. These experiences nurtured a deeper appreciation of early architecture's cultural, philosophical, and technological dimensions while building practical abilities in documentation, observation, and critical architectural analysis.

Suggested Readings/Textbooks

- Sir Banister Fletcher, A History of Architecture, University of London, The AntholonePress, 1996.
- Spiro Kostof - A History of Architecture - Setting and Rituals, Oxford UniversityPress, London, 1985.
- Leland M Roth; Understanding Architecture: Its elements, history and meaning; Craftsman House; 1994
- Pier Luigi Nervi, General Editor - History of World Architecture - Series, Harry N.Abrams, Inc.Pub., New York, 1972.
- S.Lloyd and H.W.Muller, History of World Architecture - Series, Faber and Faber Ltd.,
- Percy Brown – *Indian Architecture (Buddhist and Hindu Periods)*
- Satish Grover – *Buddhist and Hindu Architecture in India*
- James Fergusson – *History of Indian and Eastern Architecture*
- Susan Huntington – *The Art of Ancient India*
- R.C. Majumdar (ed.) – *The History and Culture of the Indian People*

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2		2	2			3		2		
CO2	2		2	1			3		3	2	
CO3	2	2	2	2			3	2	2	2	
CO4	2		3	2			3	2	3	2	
CO5	3	3		2			2	3		2	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/P resentation/ Viva	iCloud/Acade mia (online)

*(It is compulsory for a student to secure 50% marks in the Internal and End Term Practical Exam and Viva Voce separately to secure the minimum passing grade as per COA & University regulations.)

ADARSL255	SURVEYING & LEVELLING	L	T	S	P	C
Version	2.0	1	0	2	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Basics of math, mapping, graphing and plotting Understanding of different maps, scales and surveying instruments					

Course Perspective:

This course will introduced the fundamentals of surveying measurements to provide a broad overview of the surveying instrumentation (Total Station, Compass, Auto Level, Theodolite, Plane Table, Chains and Tapes), procedures, measurement corrections and reductions, survey datum, and computations that are required to produce a topographical map or a site plan for engineering and design projects.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Understanding the fundamentals and principles of surveying and measurement of distance.

CO2: Understanding angular measurement by traversing and levelling ground points from a reference datum.

CO3: Understanding horizontal and vertical angle measurement and field area calculations.

CO4: Applying techniques for finding the location of inaccessible stations on sites and conducting aerial surveys.

Course Content:

Unit 1: Surveying and Land Topography **8 hours**

- A-Introduction to Surveying: Basic concepts and importance of surveying in architecture.
- B-Understanding Land Topography: Exploration of land topography and its relevance in architectural design and planning

Unit 2: Survey Types and Equipment **7 hours**

- A-Types of Surveys: Overview of different types of surveys commonly practiced
- B-Survey Equipment Introduction: Introduction to various surveying equipment and their applications
- C-Principles of Surveying: Fundamental principles of surveying and equipment requirements.

Unit 3: Compass and Levelling Instruments **15 hours**

- A-Types of Compasses: Study of various types of compasses used in surveying.
- B-Prismatic Compass: Detailed examination of the prismatic compass, its construction, and uses.
- C-Levels and Adjustments: Overview of different types of levels, their temporary and permanent adjustments, and the use of levelling staffs.

Unit 4: Contouring and Photogrammetry **15 hours**

- A-Contour Lines: Characteristics of contour lines and their significance in surveying.
- B-Contouring Methods: Direct and indirect methods of contouring and interpolation of contours.
- C-Marking Foundations: Techniques for marking foundations and measuring buildings under construction
- D-Tacheometric Surveying: Introduction to general instruments, and systems of tacheometric measurements including the Stadia and Subtense methods.
- E-Photogrammetry: Definition, principles, and applications of photography in surveying.

Learning Experience

The course will integrate lectures, practical exercises, and fieldwork to provide a comprehensive understanding of surveying and land topography. Students will begin with an overview of surveying principles and land topography's role in architecture. They will explore various types of surveys and surveying equipment, learning fundamental principles and applications. Practical sessions will focus on using compass and levelling instruments, including detailed work with prismatic compasses and levels. The course will culminate in contouring techniques, tacheometric surveying, and photogrammetry, with hands-on projects

to apply these methods. Continuous support, feedback, and opportunities for collaborative work and peer reviews will enhance the learning experience.

Textbooks

1. Rangwala, Surveying & Levelling, Charotar Publishing House

Reference Books

1. Subramanian, Surveying Levelling, Oxford Higher Education

Open Educational Resources (OER)

1. Introduction to Surveying - Coursera: Covers the basics of surveying, including fundamental principles and the role of surveying in architecture
2. Surveying Equipment and Techniques - edX: Focuses on various types of surveys, surveying equipment, and their applications, with practical examples and exercises
3. Advanced Surveying Methods - Future Learn: Provides an in-depth look at contouring, tacheometric surveying, and photogrammetry, with practical applications and techniques in modern surveying

Course Outcomes (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	2	3	1	1	2	1	3	2	2	2	1
CO2	2	3	2	1	2	1	3	3	3	2	2
CO3	2	3	2	2	2	1	3	3	3	3	2
CO4	3	3	2	2	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

SEMESTER-III

ADARAD351	ARCHITECTURAL DESIGN-III	L	T	P	S	C
Version	1.0	2	0	0	6	8
Category of Course	Major (Studio)					
Total Contact Hours	120					
Pre-Requisites/Co-Requisites	Basic Designing Creativity					

Course Perspective

Building upon the foundational knowledge and skills developed in Architectural Design I and II, this course focuses on the comprehensive design of domestic scale architecture,. Students will engage in designing residential spaces that respond to contextual, climatic, and user-specific requirements. Emphasis will be placed on understanding and integrating spatial concepts such as privacy, identity, and the interaction between different functions in a residence. The course will explore the spatial layering of residential and workspaces, along with the relationship between indoor and outdoor areas, courtyards, thresholds, and open spaces. Through hands-on design exercises on a given residential plot of land, students will learn to create liveable, functional, and contextually grounded homes that reflect both individual needs and architectural intent.

Course Outcomes

CO1: Interpret dwelling forms by analysing spatial identity, formal–informal zones, and lived experiences through case studies and personal dwelling analysis.

CO2: Evaluate residential layouts for spatial hierarchy, functional zoning, and degrees of privacy within domestic environments.

CO3: Apply basic construction techniques using masonry and slab systems to design structurally coherent residential spaces.

CO4: Analyse the indoor–outdoor spatial relationship through the design integration of courtyards, atriums, and transitional zones.

CO5: Design contextually responsive domestic spaces that seamlessly integrate multiple functions and user-centric needs.

Course Content

Design Challenge: Courtyard House for a multi-generational family

Scale: Domestic

Context: Rural/urban edge plot

Complexity: Medium; multi-user layout, cultural context

Special Focus (Material, Construction, Form, Sustainability):

Masonry, local stone or brick, courtyard form, passive ventilation, rainwater harvesting

Unit I: Introduction and Case Study

- Overview of Residential design: Introduction to various functions.
- Understanding of own dwelling through measured drawing and analysis.
- Study of dwelling forms, spatial identity, formal and informal zones.

Unit II: Concept with Material and Spatial Understanding

- Mud, bamboo, timber – properties and behavior
- Load-bearing wall systems
- Space planning for personal/domestic use.

Unit III: Design Development with functionality and multi-use Spaces

- Multi-functional spatial arrangements
- Comfort and simplicity in design.

Unit IV: Representation and Final Output

- Sketching and diagramming shelters
- 2D drawings (plans, sections, elevations)
- Overlap of 2D and 3D sectional models.

Learning Experience: Students will engage in the design of residential spaces through critical observation, analysis of case studies, and hands-on exercises. They will learn to develop spatial hierarchies, privacy gradations, and integrated domestic functions within a given site. Emphasis will be placed on interpreting real-life residential needs, working with structural systems (like masonry and slab construction), and balancing personal identity with contextual responsiveness. Design development will progress from conceptual sketches to detailed drawings and physical models.

Textbooks

1. Watson, Donald, “Time-saver Standards for Building Materials and Systems”, Tata McGraw Hill

Suggested Readings

1. Design Dialog: Dialectics of Design in Architecture, Prof. Shireesh A. Deshpande
2. Christopher Benninger , “Letters to a Young Architect”
3. Time-Saver Standards for Building Types
4. Architectural Standard Ernst Peter Neufert Architects Data
5. Time-Saver Standards for Architectural Design Data

Open Educational Resources (OER)

1. Site Analysis and Zoning - edX: This course focuses on site analysis, zoning, and integrating built forms with their surroundings, providing practical tools for conceptual exploration and design.
2. Design Development for Public Buildings - FutureLearn: A course dedicated to designing public buildings in non-urban settings, including creating design proposals and incorporating vernacular architecture principles.

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				2	2		3		2	2	
CO2				2	2		3		3	3	
CO3	2	3		1	2		2	3	3	2	2
CO4	2	2		2	2		2	2	3	3	1
CO5	3	3	2	3	3	2	2	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARCM352	CONSTRUCTION & MATERIALS-III	L	T	P	S	C
Version	2.0	1	0	0	4	5

Category of Course	Major (Studio)
Total Contact Hours	75
Pre-Requisites/ Co-Requisites	Detailing Observation, drawing skills, maintaining journals for construction materials.

Course Perspective

This course emphasizes the study of various building materials and construction techniques, anchored in performance standards and codes. It provides an in-depth exploration of each material's application, considering both historical and contemporary methodologies. As the course progresses, it also addresses the latest trends and innovations in construction practices and materials, including new technologies. This comprehensive approach ensures that students are well-versed in both traditional and modern techniques, equipping them with the knowledge necessary to stay current in the field and apply cutting-edge solutions to real-world construction challenges.

Course Outcomes

Upon completion of the course the learner will be able:

CO1: Understanding various building materials and construction techniques through presentations based on performing standards and codes.

CO2: Understanding the latest trends in practice and usage of new technology/materials through case studies and reports.

CO3: Understanding the knowledge of procuring materials to the manufacturing of products in different industries through site visits.

CO4: Analysing the constituents, defects, classifications, treatments, preservations, and uses of traditional building materials through drawings and detailing.

CO5: Applying the use of building materials in joinery details and complex constructions with higher load capacities through models and sheets.

Course Content.

Unit I: Introduction to Framed Construction and Materials **No. of Hours 00**

- A. Concepts of Framed Construction: Overview of the principles and types of framed construction.
- B. Building Materials: Study of materials used in RCC (Reinforced Cement Concrete) construction, including reinforcements, cement, and aggregates.
- C. Manufacturing and Procurement: Understanding the processes involved in sourcing and producing building materials.
- D. Selection Criteria and Quality Control: Criteria for selecting construction materials, including quality control and testing procedures.

Unit II: Excavation, Formwork, Centering, and Scaffolding **No. of Hours 00**

- A. Excavation Methods: Exploration of excavation techniques, machinery, and tools used in construction.
- B. Formwork Systems: Overview of formwork systems and their components in RCC construction.
- C. Centering, Shuttering, and Scaffolding: Techniques and practices for centering, shuttering, and scaffolding in RCC projects.
- D. Safety Considerations: Best practices and safety measures related to formwork and scaffolding.

Unit III: RCC Construction

No. of Hours 00

- A. Principles of Framed Construction: Importance and overview of multi-storey framed structures.
- B. Substructure and Superstructure Components: Detailed study of RCC foundations (shallow and deep), basements, retaining walls, and superstructure elements.
- C. Structural Elements: Examination of beams, columns, lintels, column grids, frame construction, slabs (simply supported, cantilevered, flat), and RCC staircases.
- D. Expansion Joints: Understanding the role and implementation of expansion joints in RCC construction.

Unit IV: Wall and Floor Surface Finishing Techniques

No. of Hours 00

- A. Wall Finishes: Introduction to surface finishes for both interior and exterior walls, including paints, polishing, and texturing.
- B. Market Survey: Analysis of wall surface finishing materials, their types, and market rates.
- C. Flooring Options: Study of various flooring materials including mud, brick, terracotta tiles, cement concrete, stone slabs, terrazzo, ceramic and vitrified tiles, wooden flooring, and PVC.
- D. Market Survey: Analysis of flooring materials, their types, and market rates.

Learning Experience

The course will involve a combination of theoretical lectures, hands-on activities, and practical applications to explore framed construction and materials. Students will study the principles of framed construction, material properties, and manufacturing processes through interactive sessions. They will engage in exercises related to excavation methods, formwork systems, and safety practices. Detailed analysis of RCC construction components will be complemented by practical projects on wall and floor finishes. Students will conduct market surveys and develop proposals based on material selection and finishing techniques. Ongoing support and feedback will be provided, with collaborative group work and peer reviews encouraged for enhanced learning.

Textbooks

1. Rangwala, S. C., “Engineering Materials (Material Science)”, Charotar Publishing House.

Suggested Readings

1. Farrelly, Lorraine, “Basic Architecture 02: Construction + Materiality”, Ava Publishing,

2. Watson, Donald, "Time-saver Standards for Building Materials and Systems", Tata McGraw Hill

Open Educational Resources (OER)

1. Introduction to Framed Construction - Coursera: Provides a foundational overview of framed construction principles, including types and materials used in RCC construction.
2. Construction Methods and Safety - edX: Covers excavation, formwork systems, and scaffolding techniques, emphasizing best practices and safety measures in construction.
3. RCC Construction and Finishing Techniques - FutureLearn: Focuses on RCC construction principles, structural elements, and surface finishing techniques, including market surveys for materials.

Course Outcomes (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3
CO5	3	2		3	3	2	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAG353	Architectural Drawing & Graphics III		L	T	P	S	C
Version 2.0	2025-26		1	0	0	3	4
Category of Course	Major						
Total Contact Hours	60 Hours						
Pre-requisites/Exposure	Basic visualization and coherent thinking						
Co-requisites	Foundational drawing and sketching skills						

Course Perspective

Semester 3 focuses on advanced architectural representation and documentation. Students refine sciography for realistic 3D effects, improve presentation techniques with textures, finishes, and contextual elements, and develop measured drawing skills by documenting heritage structures with a focus on proportion and human scale. The semester emphasizes accuracy and visual storytelling in professional-quality manual drawings.

Course Outcomes

CO1: Understand the principles of sciography and apply them to architectural elements to enhance spatial realism.

CO2: Apply appropriate rendering techniques, textures, and human scale elements in architectural presentation drawings.

CO3: Analyse architectural features in heritage structures using proportion and anthropometric principles.

CO4: Create professional-quality presentation drawings incorporating shadows, context, and surface treatments.

CO5: Evaluate on-site observations and measured drawings to produce accurate and visually expressive architectural documentation.

UNIT 1: Shades and Shadows (Sciography)

- Understanding **values in shades and shadows**.
- **Constructing plan shadows** for points, lines, and planes.
- **Constructing shadows in elevation** for points, lines, and planes.
- Learning **short-cut methods** for constructing shadows quickly and accurately.
- **Presentation techniques** in sciography for architectural drawings.

Suggestive Exercises:

- Draw plans and elevation shadows for **simple and complex solids**.
- Apply shadows to **architectural features** like arches, domes, openings, and stairs.
- Combine shadows with **axonometric or perspective drawings** for realistic effects.

UNIT 2: Architectural Presentation Techniques

- Introduction to **different textures and finishes** in plan and elevation.
- Graphical representation of:
 - **Furniture, automobiles, and human figures** in plan, elevation, and 3D.
- Preparation of **presentation drawings of small buildings**:
 - Plans, elevations, sections, site plans
 - Using **various rendering techniques and media**
- Incorporating **sciography** into presentation drawings to create a 3D effect.

Suggestive Exercises:

- Prepare full presentation drawings for a **small residential building** using manual techniques.
- Add appropriate **textures, finishes, human figures, vehicles, and landscaping**.
- Use shading and shadows to enhance the **three-dimensional quality** of the drawings.

UNIT 3: Measured Drawings & Anthropometric Analysis

- Understanding the **importance and methodology** of measured drawings in architecture.
- Conduct **on-site measurement and documentation** of monuments/heritage structures.
- Study **human anthropometry and proportion** as reflected in traditional architecture.
- Preparation of **final scaled drawings** (plans, elevations, sections, and proportion diagrams) from field measurements.

COs	PO 1	PO 2	PO3	PO 4	PO 5	PO 6	PO7	PS O1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	-	2	-	2	2	-	1	3	2	-	2	1
CO2	3	3	1	3	2	1	1	-	3	-	-	2
CO3	2	2	2	2	2	2	2	3	-	3	2	-
CO4	-	3	-	3	3	2	-	3	-	2	2	2
CO5	2	3	-	-	2	2	2	3	3	-	-	2

ADARAS354	ARCHITECTURAL STRUCTURES-III	L	T	S	P	C
Version	1.0	1	0	2	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Observation and Interest in the subject Analysing, designing, simulating, visualizing, optimizing					

Course Perspective:

This course provides an ability to have a clear understanding of ethical issues pertaining to engineering and adopt industry standards of ethical behaviour. The course is designed to arouse an ability to develop and conduct appropriate experimentation, analyse and interpret data, and use architectural judgment to draw conclusions and an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Remembering the elementary treatment of concrete technology.

CO2: Understanding the design of lintels with sunshades and slabs spanning in one direction.

CO3: Designing and creating the staircase.

CO4: Designing and creating a reinforced two-way slab, applying relevant principles and calculations.

Course Content:

Unit 1: Design of Lintels and Reinforced Brickwork 8 hours

- A-Lintels with Sunshade: Design principles for lintels including sunshade considerations.
- B-Load Transfer on Lintels: Various cases and methods of load transfer through lintels.
- C-Cantilever Chhajja: Design considerations for cantilevered chhajjas (overhangs).
- D-Reinforced Brickwork (RBW): Introduction to reinforced brickwork and its design steps.

Unit 2: Stairs Design and Detailing 7 hours

- A-Design & detailing of Stairs
- B-Distribution of loading on staircase
- C-Design of doglegged stairs
- D-Design of stairs with quarter space landing.

Unit 3: Design of One-Way Slab 15 hours

- A-Introduction of One-Way Slab
- B-Design of slabs spanning in one direction, focusing on load distribution and reinforcement.

Unit 4: Design of Two-Way Slabs

15 hours

- A-Two-Way Slab Design: Principles and design of two-way slabs using various methods.
- B-Grashoff Rankine's Theory: Application of Grashoff Rankine's theory in slab design.
- C-IS Code 456-1978 Method: Design methods according to IS Code 456-1978 for simply supported, fixed edges, and continuous slabs.
- D-Torsional Reinforcement: Considerations for torsional reinforcement in two-way slabs.

Learning Experience

The course will combine theoretical instruction with practical exercises to deepen understanding of structural design elements. Students will begin with the design of lintels, slabs, and reinforced brickwork, covering principles, load transfer, and specific design considerations. They will then advance to doubly reinforced and flanged beams, exploring theory, design, and application. The course will further cover reinforcement analysis, focusing on torsion, shear, and various types of reinforcement. Finally, students will study two-way slab design, applying different theories and IS Code 456-1978 methods. Practical assignments, design projects, and group discussions will enhance learning, with continuous support and feedback provided.

Textbooks

4. IS: 883–1984 (reaffirmed 2005), Code of Practice for Design of Structural Timber in Buildings.
5. IS: 1905–1987 (reaffirmed 2002), Code of Practice for Structural Use of Un-reinforced Masonry.
6. R.C.C. Design by B.C. Punmia, Laxmi Publications, New Delhi.

Reference Books

2. R.C.C. Design by Singh H. Abhishek Publications, Chandigarh.

Open Educational Resources (OER)

1. Structural Design Basics - Coursera: Offers a comprehensive introduction to the design of structural elements like lintels, slabs, and reinforced brickwork, including practical design principles.
2. Reinforced Concrete Design - edX: Focuses on the theory and design of reinforced beams, flanged beams, and continuous T-beams, with emphasis on practical applications and reinforcement analysis.
3. Advanced Concrete Design - FutureLearn: Provides advanced techniques for two-way slab design, including application of Grashoff Rankine's theory and IS Code 456-1978 methods, with practical design exercises.

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	1	1	2	1	3	2	2	1	1
CO2	2	3	1	1	2	1	3	3	2	2	2
CO3	3	3	1	2	2	1	3	3	3	2	3
CO4	3	3	2	2	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARHA302	HISTORY OF ARCHITECTURE II	L	T	P	S	C
Version	2025-26	1	0	0	1	2
Category of Course	Major (Theory)					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Cultural Awareness, Critical Thinking, Historical Sensitivity					

Course Perspective

This course aims to explore the evolution of architectural traditions across diverse civilizations from the post-classical to early medieval period. Emphasizing both regional diversity and intercultural connections, the course traces the development of architectural forms, materials, spatial concepts, and religious symbolism through an interdisciplinary lens.

Beginning with the classical traditions of Gupta architecture and Indian temple typologies, the course examines how religion, mythology, and regional materials shaped the built environment. The journey then expands beyond India to study Byzantine architecture, the Romanesque revival in Europe, and the spread of Islamic architecture across continents—each illustrating new structural innovations, decorative vocabularies, and sacred spatial practices. By comparing architectural responses to religion, power, and environment across cultures, students will develop a nuanced understanding of how built environments are both culturally specific and globally interconnected.

Course Outcomes

CO 1: To *define* key architectural features, elements, and building typologies from Gupta, Byzantine, Islamic, Romanesque periods.

CO 2: To *explain & understand* architecture as evolving within specific cultural contexts including aspects of politics, society, religion and climate.

CO 3: To *analyse* architectural styles and elements through comparative study across geographic regions and historical timelines.

CO 4: To *evaluate* the significance of structural innovations and material usage in shaping architectural language and spatial experiences.

CO 5: To *apply* knowledge of historical architectural principles to analyse existing monuments and heritage sites.

Course Content

Unit I: Temple Architecture

15 hours

- Detailed study of Hindu temple styles, including Nagara (Khajuraho, Konark), Dravidian (Mahabalipuram, Thanjavur), and Vesara (Badami, Pattadakal).
- Architectural Elements: Exploration of other Hindu architectural elements such as forts, palaces, stepwells, gates, and baradaris.
- Comparative Analysis: Comparing and contrasting different styles and elements of Hindu architecture across the country.
- The evolution of the temple form: the evolution of the shikhara in North India.

- The three schools of architecture; the Gujarat, the Khajuraho, and the Orrisan styles. Comparison in spatial attributes, scale, and detail.
- The evolution of the vimana and the contributions of the Chalukyas, the Pallavas, the Pandyas, and the Cholas. The contributions of the Nayaks to the temple cities. The city morphology, spatial diversity, and planning criteria.
- Hindu theory & philosophy and its imprint in temples/traditional houses and other built structures. Mandala and the geometric.

UNIT II: Emphasis on Byzantine and Romanesque Architecture

5

Hours

- The techniques of construction and evolution of forms from Byzantine architecture (types of domes, spanning of space with squinches, and use of pendentives in important churches of Constantinople). Hagia Sophia and the development of the dome.
- The study continues with new construction methods of Romanesque architecture, with emphasis on massiveness, verticality, and ornamentation of medieval churches and integration of centralized and longitudinal plans. Churches of Italy and France are studied for articulation of external wall like arcaded interiors and combination of the five towered structures and longitudinal basilica.

Unit III: Gothic Architecture

5

hours

- Gothic Architecture with flying buttress, ribbed vault, use of stained glass in cathedrals and churches and its influence in Central Asian cities like Bukhara and Samarkand are covered to complete the course.

Unit IV: Islamic and Mughal Architecture

5

Hours

- Rise of Islamic Architecture: Overview of the rise of Islamic architecture and its key characteristics.
- Architectural Elements: Study of Islamic architectural elements including mosques, tombs, domes, minarets, and arches.

Learning Experience:

Inside: Students explored architectural evolution from post-classical to early medieval periods through lectures, comparative studies, and visual analysis. They studied temple typologies, structural innovations, and stylistic transitions across regions, including Gupta, Byzantine, Romanesque, Gothic, and Islamic architecture. Key concepts like mandala planning, symbolism, and construction techniques (domes, arches, vaults) were critically examined. Interactive activities like sketching, annotated drawings, and presentations enhanced analytical and visual interpretation skills. Discussions fostered comparative thinking between Indian and global traditions, while case-based assignments deepened their understanding of the spatial, material, and cultural nuances shaping sacred and monumental architecture across civilizations.

Outside: Students engaged in experiential learning through site visits, model making, and interpretive documentation. Visits to local temples, mosques, and churches helped them observe architectural elements such as shikharas, domes, arches, and stained glass firsthand.

Assignments involved sketching and identifying structural features, creating models of Gothic stained glass or Romanesque churches, and writing comparative essays on temple forms. These activities bridged historical theory with tactile experience, encouraging attention to detail, proportion, and symbolism. Through guided field documentation and hands-on creative tasks, students developed a deeper appreciation of architectural heritage and its cross-cultural evolution and influence.

Suggested Readings/ Textbooks

- History of Architecture by Sir Banister Fletcher
- Indian Architecture: Buddhist and Hindu Period by Percy Brown
- A Global History of Architecture by Francis D.K. Ching
- The Art and Architecture of Islam by Richard Ettinghausen & Oleg Grabar

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2		2	2			3		2		
CO2	2		2	1			3		3	2	
CO3	2	2	2	2			3	2	2	2	
CO4	2		3	2			3	2	3	2	
CO5	3	3		2			2	3		2	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/Presentation/Viva	iCloud/Academia (online)

*(It is compulsory for a student to secure 50% marks in the Internal and End Term Practical Exam and Viva Voce separately to secure the minimum passing grade as per COA & University regulations.)

ADARAS303	Architectural Services I	L	T	S	P	C
Version	1.0	2	1	0	0	3
Category of Course	Major (Theory)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Basic Drawing Skills, Logical thinking					

Course Perspective:

This course provides a comprehensive and integrated understanding of water supply and sanitation systems in built environments, with a strong focus on sustainable practices, regulatory compliance, and practical design skills. Students will engage with core principles, apply technical standards, specify and select system components, and develop effective layouts and drawings for residential building scenarios. Emphasis is placed on both traditional and innovative, future-ready approaches to water, waste, and sanitation.

Course Outcomes:

On completion of the course the learner will be:

CO1: Remembering foundational concepts, terminology, and principles related to water supply and drainage systems in buildings.

CO2: Understanding the organization and operation of water supply systems from municipal sources to the building scale, referencing relevant standards.

CO3: Applying design principles, regulatory codes, and technical standards to water supply and sanitation systems in domestic and multi-storeyed buildings, selecting appropriate materials and fixtures.

CO4: Creating effective layouts and technical drawings for plumbing, drainage, and rainwater harvesting systems, integrating sustainability and innovative solutions for small residential projects.

Course Content:

Unit I: Water Supply

No. of Hours: 10

- Sources and treatment of water; qualities of potable water.
- Calculation of water demand; storage and conveyance of water from municipal supply to and within buildings; Implementation of codes and standards.
- Plumbing systems, water supply fittings, materials, and hot/cold-water supply layouts, including for multi-storeyed buildings.

Unit II: Residential Water Supply and Fixtures

No. of Hours: 15

- Water supply for residences: connection with water mains, sizing of underground and overhead tanks, water pump capacity.
- Calculation of pipe diameters and flow; pressure considerations for multi-storeyed structures.
- Modern, water-efficient fixtures; market survey and evaluation of materials; referencing IS/BIS standards.

Unit III: Sanitation, Fixtures, and Wastewater Management**No. of Hours: 10**

- Refuse, sullage, storm water, sewage, etc.; types of drainage and sanitary fixtures, traps (including waterless solutions), and fittings.
- Pipe appurtenances, materials for pipes and drains; sizing, slope standards, and spatial requirements for sanitary systems,
- Sewer appurtenances, Inspection and intercepting chambers, manholes, and integrating cost-effective and sustainable sanitation concepts (e.g., EcoSAN, biogas, rural sanitation).

Unit IV: Sewage Systems, Storm water, and Sustainable Solutions**No. of Hours: 10**

- Sewage and wastewater recycling systems (e.g., DEWATS) for small projects; STPs, septic tank and soak pit design.
- Storm water drainage for rooftops and surface drains; Rainwater harvesting and groundwater recharge schemes.
- Zero-discharge and innovative, sustainable water management practices into building design; layout and technical drawings for site-wide systems.

Learning Experience:

This course will be delivered in an experiential and participatory manner, incorporating a mix of lectures, hands-on projects, and collaborative group activities to ensure students gain both theoretical knowledge and practical skills. The teaching methods are designed to make learning interactive, engaging, and relevant to real-world applications. The learning experience comprises both inside and outside classroom experiences.

Inside Classroom: Lectures and Tutorials: Interactive lectures, technical demonstrations, case-study analysis, and guided drawing sessions aligned with national/international standards.

Outside Classroom: Case Studies: Visits to observe working water supply and sanitation systems. Market survey: For plumbing, sanitary fixtures, and materials.
Mapping of Water Supply and Sanitation Infrastructure in Settlements

Textbook:

1. Birdie, B. S. (1996). Water supply and Sanitary Engineering. Dhanpat Rai and Sons. & National Building Code of India. (2005)
2. Punmia, B. C., Jain, A. K. and Jain, A. K. (1995). Water Supply Engineering. New Delhi : Laxmi Publications.

Reference Books

1. Hall, F., & Greeno, R. (2016). Building services handbook (8th ed.). Routledge.
2. Merritt, A. F. (2013). Plumbing: Design and installation (6th ed.). Routledge.
3. Central Public Health and Environmental Engineering Organisation. (2013). Manual on water supply and treatment (4th ed.). Ministry of Urban Development, Government of India.

4. Bureau of Indian Standards. (1993). IS 1172: Code of basic requirements for water supply, drainage and sanitation. BIS.
5. Bureau of Indian Standards. (1983). IS 1742: Code of practice for design and construction of septic tanks. BIS.
6. Bureau of Indian Standards. (2016). National building code of India (Volume 1 & 2). BIS.
7. IS Codes (IS 1172, IS 1742, etc.), National Building Code

Open Educational Resources (OER) –

1. Water Supply Engineering By Prof. Manoj Kumar Tiwari, Professor, IIT Kharagpur
https://onlinecourses.nptel.ac.in/noc20_ce23/preview
2. Urban Utilities Planning: Water Supply Sanitation and Drainage By Prof. Debapratim Pandit, IIT Kharagpur
https://onlinecourses.nptel.ac.in/noc22_ar16/preview
3. Designing and Implementing Successful Water Supply and Sanitation Utility Reform (Self-paced) <https://www.worldbank.org/en/olc/course/36618>
4. Course Urban Water Supply
<https://www.open.edu/openlearncreate/course/view.php?id=2099>

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2			1		3	2			
CO2	2	3			2		3	3	2	2	
CO3	3	3	2	2	3	2	2	3	3	3	2
CO4	3	3	2	3	3	2	2	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme:

Total Maximum Marks: 100					
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

ADARTC355	Theory and Critical Thinking II	L	T	S	P	C
Version	1.0	0	0	3	0	3
Category of Course	Major					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	None					

Course Objectives:

This course aims to:

5. Introduce the idea of architecture as a cultural, sensory, and spatial experience.
6. Enable students to observe, think, and talk about architecture in informed ways.
7. Build a basic architectural vocabulary essential for design education.
8. Initiate a habit of reflective writing and visual description.

Course Outcomes:

CO1: Identify and **recall** fundamental architectural terms, elements, and basic spatial concepts such as space, form, light, and material.

CO2: Describe and **explain** spatial experiences using sensory and emotional observations from built environments.

CO3: Apply architectural vocabulary to **interpret** everyday spaces through sketching, storytelling, and reflective writing.

CO4: Analyse simple architectural texts and **evaluate** spatial experiences by forming personal responses and articulating viewpoints.

Course Content:

UNIT 1: Introduction to Architecture and Theory hours

15

- What is architecture? Basic definitions and scope.
- Architecture as shelter, space, experience, memory.
- What is theory? The role of reading, writing, and thinking in architecture.

Activity: Campus observation walks + discussion on “What is a good space?”

UNIT 2: Seeing, Sensing, and Describing Space hours

15

- Elements of architectural experience: light, material, texture, colour, proportion.
- Personal vs. public space, comfort and discomfort.
- Vocabulary of space: 20 key terms explained through drawings, models, and images.

Activity: Sketch + write: “My favourite place and why.” Vocabulary wall exercise.

UNIT 3: Thinking, Reading, and Reflecting

15

hours

- Reading short, accessible texts from architectural thinkers.
- Interpreting buildings: function, meaning, atmosphere.
- Speaking and writing: Journaling, oral storytelling, response essays.

Activity: Weekly journal entries + Read-Aloud and Reflect sessions.

Learning Experience:

Inside Classroom:

Outside Classroom:

Textbook:

6. Charles Correa – A Place in the Shade
7. Juhani Pallasmaa – The Eyes of the Skin
8. Christian Norberg-Schulz – Genius Loci
9. Le Corbusier – Towards a New Architecture
10. Christopher Alexander – A Pattern Language

Reference Books

Open Educational Resources (OER)

- “Why Architecture Matters” – TEDx
- “Spaces Speak” – Short video series

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	–	3	–	3	–	3	2	–	–	–
CO2	–	3	–	–	3	–	–	3	–	–	2
CO3	–	–	3	–	2	2	–	–	3	2	–
CO4	3	–	–	–	3	–	2	–	–	3	–

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

ADARRI356	REGIONAL IMMERSSION & DOCUMENTATION	L	T	S	P	C
Version	1.0	0	0	0	0	2
Category of Course	Major (Practical)					

Course Perspective

The study trip is designed to provide Semester III architecture students with direct exposure to **regional and vernacular architectural practices, cultural heritage, and contemporary applications**. By visiting selected sites at a regional level, students will analyze the relationship between architecture, **local context, culture, climate, materials, and construction techniques**. The trip aims to bridge classroom learning with real-world observation, reinforcing the design studio's focus on **contextually and culturally responsive design**.

Course Outcomes:

CO1: Understanding regional and vernacular architectural vocabulary, typologies, and cultural influences.

CO2: Applying observations from vernacular and regional architecture to inform design studio work and conceptual thinking.

CO3: Analysing the impact of climate, culture, materials, and vernacular construction methods on spatial and structural design.

CO4: Creating visual and analytical documentation (sketches, diagrams, reports) translating vernacular and regional observations into design insights.

Guidelines for the Study Trip

A **Regional study trip** for architecture students before Semester 4 for 5-7 days, to explore architectural styles, construction techniques, and cultural contexts, enhancing their design thinking, observational skills, and practical understanding.

The study trip will be preceded by an **orientation session** to familiarize students with the objectives, methodology, and relevance to the Semester III design studio. Students will be briefed on the **selected region**, its vernacular typologies, and the **key architectural features** to observe, including materiality, spatial organization, and climate-responsive strategies.

During the trip, students will **document vernacular and regional architecture** through sketches, photographs, measured observations, and analytical diagrams. They will study **construction techniques, building details, and cultural influences**, engaging with local architects, artisans, or community stakeholders where possible to deepen contextual understanding. Faculty will conduct **on-site discussions** to highlight relevant design principles.

Post-trip, students will **compile their documentation** into structured reports, integrating field observations into their design studio projects. **Group discussions and presentations** will provide opportunities to analyze findings collectively and evaluate how vernacular lessons can be applied to contemporary, contextually appropriate design.

Learning Experience

The trip combines experiential learning with guided academic structure. Students will engage in field sketching, photographic documentation, material analysis, and cultural immersion. Faculty-led site discussions will help identify key lessons relevant to design. Post-trip sessions will focus on integrating field observations into ongoing studio projects, enhancing contextual sensitivity in design proposals.

Evaluation Scheme

	Evaluation Components	Weightage
DOCUMENTATION (50 Marks)	1. Field sketches and measured drawings 2. Photographic records with annotations	20 Marks
	1. Analytical diagrams of vernacular features, materials, and climate response 2. Compilation of illustrated trip report	30 Marks
APPLICATION & PRESENTATION (50 Marks)	1. Integration of trip learnings into design studio project 2. Conceptual analysis and thematic reflection of vernacular principles	20 Marks
	1. Final presentation (visual + verbal) to faculty and peers. 2. Participation and engagement during trip.	30 Marks

SEMESTER-IV

ADARAD451	ARCHITECTURAL DESIGN-IV	L	T	P	S	C
Version	2.0	2	0	0	6	8
Category of Course	Major (Studio)					
Total Contact Hours	120					
Pre-Requisites/ Co-Requisites	Basic Designing Creativity					

Course Perspective

This course aims at designing community spaces by addressing community needs through empathy-based engagement and participatory tools, with a special emphasis on rural morphology and context. The course encourages exploration of outdoor spatial planning, landscaping, and the development of inclusive programs. Students will analyse the role of edges and boundaries in public spaces and work collaboratively on program development to create responsive, inclusive, and context-aware community environments.

Course Outcomes

CO1: Identify and analyse **community needs** by studying the social, cultural, and spatial dynamics of rural and urban settlements.

CO2: Apply **empathy-based engagement** techniques and **participatory tools** to involve stakeholders in the design process of community spaces.

CO3: Interpret **rural morphology** and existing site conditions to inform context-sensitive design decisions.

CO4: Develop and evaluate spatial **programs** for public spaces that encourage inclusivity, collaboration, and multifunctionality.

CO5: Design responsive community environments by thoughtfully integrating **edges and boundaries** that shape user interaction and spatial experience.

Course Content

Design Challenge: Community Centre / Learning Space / Rural Health Unit

Scale: Community

Context: Village cluster, peri-urban edge

Complexity: Medium–High; public program, multiple users

Special Focus (Material, Construction, Form, Sustainability):

Earthen walls, thatch, mud bricks, bamboo; public-friendly forms, shaded courtyards

Unit I: Introduction to Community Needs and Typologies

Understanding community programs, cultural spaces, inclusivity in design through case study and interaction with stakeholders.

Unit II: Concept, Site Planning and Outdoor Spaces

Conceptual layout with understanding of spatial hierarchy in community spaces with emphasis on empathy and understanding through participatory engagement.

Unit III: Design Development with Site layout

-Integration of indoor and outdoor with landscaping, site furniture, accessibility.

-Use of participatory tools, empathy-based design, edge and boundary studies to develop narrative for design.

Unit IV: Representation and Output

Site plans, sections, models, community narratives, final documentation.

Learning Experience

This course offers a hands-on, immersive design experience where students explore climate-responsive and contextually rooted architecture. Through case studies, site analysis, and small-scale design projects like community halls and libraries, they develop sensitivity to form, function, and environment. Emphasis is placed on spatial organization, structural detailing, and visual harmony, culminating in presentation drawings and models supported by continuous feedback and peer learning.

Textbooks

1. Watson, Donald, “Time-saver Standards for Building Materials and Systems”, Tata McGraw Hill

Suggested Readings

1. Design Dialog: Dialectics of Design in Architecture, Prof. Shireesh A. Deshpande
2. The Discovery of Architecture: a contemporary treaties on ancient values and indigenous reality, M.N. Ashish ganju and Narendra Dengle
3. Agarwal, A., “Mud: The Potentials of Earth based Material for Third World Housing”, IIED
4. Christopher Benninger , “Letters to a Young Architect”

Open Educational Resources (OER)

1. Design Principles for Climatic Conditions - Coursera: Covers the relationship between built forms and climatic conditions, focusing on design strategies for various building types.
2. Site Analysis and Design Concepts - edX: Provides methods for detailed site analysis and developing design concepts that respond to site conditions and context.
3. Advanced Design Development - Future Learn: Focuses on the development of functional, geometric, and visual order in design, including integration of structural considerations and detailed design.

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1		1	2		3	1	3		3	2	
CO2			2	3	2	2	3		2	2	
CO3	2	2	2	2	3	1	3	3	3	3	2
CO4	3	2	2	2	3		3	2	3	3	1
CO5	3	3	3	3	3		3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADARCM452	Construction & Materials IV	L	T	P	S	C
Version	2.0	2	0	0	3	5
Category of Course	Major (Studio)					
Total Contact Hours	75					
Pre-Requisites/ Co-Requisites	Learn Detailing Drawing skills					

Course Perspective

This course provides an in-depth understanding of the role of metals—both ferrous and non-ferrous—in modern architectural construction. It focuses on the structural, functional, and aesthetic use of steel and other metals in building elements, with emphasis on their properties, processing, and environmental impact. The course integrates theory with practical application through the study of framed steel structures, long-span systems, and metal-based components used in architecture. Students will explore advanced construction techniques including space frames, trusses, tensile and membrane structures, enhancing their ability to apply metal-based systems in innovative and sustainable architectural designs.

Course Outcomes

- CO1:** Understanding properties, extraction, and environmental impact of Ferrous and Non-Ferrous metals.
- CO2:** Applying knowledge through sketches and annotated construction sheets.
- CO3:** Evaluating the various construction technologies learned and select the best possible solution for the project.
- CO4:** Creating detailed architectural drawings of steel structures and glazed façades.

Course Content

Unit I: Ferrous Metals, its Extraction and Processing

No. of Hours 10

- Overview of ferrous metals commonly used in building construction, Techniques for extracting, Properties, and characteristics of steel.
- Environmental and ecological impact of metal extraction and processing.

Unit II: Framed Structures Using Steel for Construction

No. of Hours 20

- Introduction to framed structures using steel.
- Types of connections in steel, steel in different structural members (foundation, column, beam)
- Steel Truss Frames (saw tooth roof truss with north light glazing, simple trusses in

- steel),
- Space Frames (single, double & triple layered tubular space frames),
- Gates (collapsible & entrance gates), and
- Steel Components (doors, windows, stairs)

Unit III Non – ferrous Metals

No. of Hours 20

- Brief study of Aluminium & Aluminium alloys, properties and uses
- Aluminium products used in construction
- Uses of metals such as copper & copper-based alloys, tin, cadmium etc. in Construction

Unit IV: Introduction-Long Span structures

No. of Hours 25

Construction techniques for erection of space frames, suspended roofs, membrane structures, cable structures, long span structures, tensile structures, diaphragm shell structures in architecture.

- Understand the structural behaviour and applications of long-span systems in architecture.
- Study construction techniques for space frames, cable-stayed roofs, and membrane structures.
- Explore erection methods for tensile structures and suspended roofing systems.
- Analyse the design and function of diaphragm and shell structures in large-span architectural spaces.
- Examine real-world case studies of stadiums, auditoriums, and exhibition halls using long-span systems.

Learning Experience

The course will follow a multi-modal learning process that combines lectures, hands-on sessions, case studies, field visits, and studio-based exercises. Students will begin with an understanding of ferrous and non-ferrous metals and progress toward steel frame design and detailing. Through sketches, construction sheets, and model-making, they will apply this knowledge to real-life scenarios. On-site workshops and site visits to steel or glazing construction sites will provide experiential learning. Design-based construction detailing will be encouraged to stimulate analysis and creative output. Feedback sessions and peer reviews will be embedded in the process to promote critical thinking and reflection.

Suggested Readings/ Textbooks

1. Barry, R (1986) Construction of Buildings, London, vol. 1 to 5.
2. BIS (2011) National Building Code, SP 7, Bureau of Indian Standards.
3. Deplazes, A. (2018). *Constructing Architecture: Materials, Processes, Structures : a Handbook*. Walter de Gruyter GmbH.
4. Eisele, J. (2003). *High Rise Manual (1st Edition)*. Birkhäuser Architecture.

5. Goyal, M. (2004). *Handbook of Building Construction: The Essential Source of Standard Construction Practices*. Amrindrea Consultancy.
6. Kumar, S. (2006). *Building Construction (16th Edition)*. Standard Publishers Distributors.
7. Punmia, D. B. (2005). *A Textbook of Building Construction*. Laxmi Publications (P) Ltd.
8. Rangwala, S. C. (2009). *Building Construction*. Charotar Publishing House Pvt. Limited.

Suggested Readings

1. Foster, Stroud (1963) Mitchell's Advanced Building Construction, Allied Publishers Private Limited, Bombay.
2. McKay, W. B. (1972) Building Construction (Metric), Longman, London, vol. 1 to 5.
3. Prabhu, Balagopal T. S. (1987) Building Drawing and Detailing, Spades Publishers Pvt. Ltd., Calicut.
4. Punmia, B. C. (2005) Building Construction, Firewell Media, Delhi.
5. Singh, Gurucharan (1981) Building Construction Engineering, Standard Book House, New Delhi.
6. CPWD. (n.d.). *CPWD Publications*. Retrieved 2020, from Government of India Ministry of Housing & Urban Affairs Central Public Works Department: https://cpwd.gov.in/Documents/cpwd_publication.aspx
7. CPWD. (n.d.). *DELHI SCHEDULE OF RATES, 2018*. Retrieved 2020, from Government of India, MoHUA, CPWD: [https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_\(E_and_M\)_2018.pdf](https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_(E_and_M)_2018.pdf)
8. McKay, J. (2005). *Building Construction- Volume 4 (4th Edition)*. Orient Longman.
9. McKay, W. B. (2003). *Building Construction - Volume 1 (5th Edition)*. Orient Longman.
10. McKay, W. B. (2006). *Building Construction - Volume 2 (4th Edition)*. Orient Longman.
11. McKay, W. B. (1995). *Building Construction- Volume 3 (5th Edition)*. Orient Longman.
12. R. Chudley, R. G. (2006). *Building Construction Handbook (6th Edition)*. Butterworth-Heinemann.
13. R. Chudley, S. T. (2012). *Advanced Construction Technology (Edition 5, illustrated)*. Pearson.
14. Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 1)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding01>
- Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 2)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding02>

Open Educational Resources (OER)

1. Introduction to Steel Structures - Coursera: Offers a detailed overview of steel framing, including types of steel sections and structural connections.

2. Glazing Systems and Techniques - edX: Provides insights into different glazing systems, their manufacturing processes, and installation techniques.
3. Sustainable Metal Construction – Future Learn: Focuses on the environmental and ecological impacts of metal extraction and processing, along with sustainable practices in metal construction.

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAS454	ARCHITECTURAL STRUCTURES-IV	L	T	S	P	C
Version	2.0	1	0	2	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Basics of Structural Analysis and Mechanics Understanding of different structures and their behaviour under loading conditions					

Course Perspective:

This course will cover flexural analysis and design of reinforced concrete structures including, shear and diagonal tension, serviceability, bond, anchorage and development length of flat slab short and slender columns and footings in reference to architecture requirements. To introduce the students to the fundamentals of reinforced concrete design with emphasis on the design of flat slabs, short and slender columns, footings and foundations. In addition, student will learn how to analyse, and design reinforced concrete structural members under bending, shear, and/or axial loads according to the IS building code requirements.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Remembering the design of flat slabs.

CO2: Understanding the terminology related to columns and their design concepts.

CO3: Understanding the design and detailing of columns subjected to direct and bending stresses.

CO4: Understanding the design of prestressed beams and foundations

Course Content:

Unit 1: Design of Slabs and Frames

8 hours

- A-Design of flat slabs
- B-Continuous frame method
- C-Empirical design method of flat slabs

Unit 2: Design of RCC Columns

7 hours

- A-Design of axially loaded RCC columns
- B-Long & short columns
- C-Lateral reinforcement for columns
- D-Permissible stresses in RCC columns
- E-Effective length
- F-Slenderness ratio
- G-Eccentricity
- H-Longitudinal & Transverse reinforcement
- I-Pitch & dia of ties
- J-Helical reinforcement

- K-Direct & Bending stresses
- L-Design of columns subjected to combined bending & direct stresses
- M-IS note on design of columns subjected to combined bending & direct stresses

Unit 3: Prestressed Concrete

15 hours

- A-Elements, Principles, and systems of prestressed
- B-loss of pre-stress
- C-Analysis of pre-stressed beams
- D-design of beam, circular tanks & pipe

Unit 4: Foundation Design

15 hours

- A-Square, rectangular, trapezoidal & circular footings
- B-Inclusive of one way and two shears
- C-Flexure & checks
- D-IS code for design of footing
- E-Design of continuous wall footing
- F-Design of isolated column footing
- G-Design of combined footing
- H-Shapes of combined slab footing
- I-Design steps slab footing
- J-Design steps slab footing with centre beam
- K-Strap footing
- L-Mat or Raft foundation

Learning Experience

This unit covers the design of flat slabs, continuous frame methods, and empirical design methods for flat slabs. Students will learn the principles and techniques involved in designing these structural elements. This unit focuses on the design of Reinforced Cement Concrete (RCC) columns. Topics include: Design of axially loaded RCC columns, Long and short columns, Lateral reinforcement, permissible stresses, effective length, and slenderness ratio, Eccentricity and reinforcement details such as pitch, diameter of ties, and helical reinforcement.

Textbooks

1. IS: 883–1984 (reaffirmed 2005), Code of Practice for Design of Structural Timber in Buildings.
2. IS: 1905–1987 (reaffirmed 2002), Code of Practice for Structural Use of Un-reinforced Masonry.
3. R.C.C. Design by B.C. Punmia, Laxmi Publications, New Delhi.

Reference Books

1. R.C.C. Design by Singh H. Abhishek Publications, Chandigarh.

Open Educational Resources (OER)

1. Design of Flat Slabs - NPTEL Course: An online course focusing on the design principles and methods for flat slabs.
2. Design of Continuous Frames - YouTube Tutorials: Step-by-step video tutorials on continuous frame design methods.
3. RCC Columns Design - Lecture Notes and Slides: Comprehensive lecture notes and slides on the design of RCC columns, including reinforcement details and permissible stresses.
4. Combined Stresses in Columns - IS Code and Design Examples: Resources covering the IS code provisions for columns subjected to combined bending and direct stresses, with design examples.

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	1	1	2	1	3	2	2	1	1
CO2	2	3	1	1	2	1	3	2	2	2	1
CO3	3	3	2	2	2	1	3	3	3	3	2
CO4	3	3	2	2	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARHA401	HISTORY OF ARCHITECTURE III	L	T	P	S	C
Version	2.0	1	0	0	1	2
Category of Course	Major (Theory)					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Cultural Awareness, Critical Thinking, Historical Sensitivity					

Course Perspective

This course explores key architectural developments from the medieval to early modern period, focusing on stylistic and cultural transitions across regions. Beginning with Indo-Islamic architecture in India, the course examines the Sultanate and Mughal periods, along with regional expressions known as Provincial architecture. The planning of historic cities and citadels is studied in parallel, highlighting defensive, civic, and symbolic aspects of urban design.

The course then transitions to Europe, tracing the revival of classical forms during the Renaissance, followed by the stylistic experimentation of Mannerism and the theatrical exuberance of Baroque architecture. Through case studies, sketch analyses, and historical readings, students will understand how architecture reflects social, political, religious, and technological shifts across time and geography.

Course Outcomes

CO 1: *Identify and remember* significant architectural styles of Delhi Sultanate, Mughal, Provincial and European period.

CO 2: Study regional diversities through provincial architecture.

CO 3: *Sketch* prominent historical buildings that represent different architectural styles

CO 4: *Analyse* the characteristics elements of prominent architectural styles. Explore the key characteristics of Renaissance, Mannerism, and Baroque architecture in Europe.

CO 5: *Develop* comparative and analytical skills through stylistic and spatial analysis.

Course Content

Unit I: The Sultanate Style:

8 hours

- The architecture of early Islamic dynasties that ruled from Delhi like the Slave, Khalji, Tughlaqs, Sayyids, Lodhis and Shershah Suri regimes. The formation of "Indo-Islamic" style that was the amalgamation of Islamic space and prevalent Hindu techniques of building and materials. Case examples: Qutub Minar, Alai Darwaza, Tughlaqabad Fort, Lodhi Tombs

UNIT II: Provincial Architecture & Cities and Citadels:

4 Hours

- Development of colloquial styles in various provinces of India like Punjab, Jaunpur, Gujrat, Bengal, Bijapur, Bidar and Deccan. Case examples: Jami Masjid (Champaner), Adina Mosque (Bengal), Gol Gumbaz (Bijapur)

- Cities and Citadels: Morphology of fortified cities of Jaisalmer, fort/ palaces like Mandu, Chittorgarh, Orchha, Datia, Jodhpur etc. with an overview on architectural types like havelis, stepwells, gates, baradaris etc.

Unit III: Mughal Architecture

8 hours

- The architecture of the Timurids in India- Babur, Humayun, Akhbar, Jahangir and Shahjahan, which was the culmination of the Indo-Islamic paradigm. The proportions, structure systems, landscape, materials, scale and distinct features.
- Case examples: Humayun's Tomb, Agra Fort, Taj Mahal, Shalimar Bagh (Kashmir)

Unit IV: Renaissance Architecture, Mannerism & Baroque Architecture

10 Hours

A. Renaissance Architecture:

- Background: Humanism, revival of classical antiquity
- Architectural language: Columns, domes, symmetry, perspective
- Key architects: Brunelleschi, Alberti, Bramante, Michelangelo
- Case studies: Florence Cathedral Dome, Tempietto of San Pietro, St. Peter's Basilica

B. Mannerism in Architecture (Late Renaissance)

- Features: Complexity, tension, experimentation with classical forms
- Comparison with Renaissance clarity and balance
- Architects: Giulio Romano, Michelangelo (late works)
- Case studies: Palazzo del Te, Laurentian Library

C. Baroque Architecture:

- Dramatic, theatrical style aimed at evoking emotion and power
- Use of curves, domes, light effects, elaborate ornamentation
- Architects: Bernini, Borromini, Guarini
- Case studies: St. Peter's Colonnade, San Carlo alle Quattro Fontane, Versailles Palace

Learning Experience

Inside: Students explored architectural transformations from the Delhi Sultanate to the Baroque period through case studies, visual presentations, and critical discussions. Lectures covered Indo-Islamic evolution, Mughal symmetry and detailing, and European developments like Renaissance humanism, Mannerist experimentation, and Baroque theatricality. Sketching exercises and the architectural zine project enhanced students' ability to observe, analyze, and document stylistic features and spatial compositions. Comparative analyses like Taj Mahal vs. St. Peter's Basilica fostered cross-cultural understanding. Emphasis on proportion, ornamentation, structural systems, and symbolism helped students build a strong foundation in historical architecture and its connection to sociopolitical and artistic contexts.

Outside: Students engaged in hands-on and creative activities to deepen their historical understanding. Sketchbook studies of monuments during site visits (e.g., Fatehpur Sikri, Red Fort) developed observational and documentation skills. The architectural zine and costume design challenge encouraged them to translate architectural styles into visual and wearable narratives, enhancing creativity and comprehension. Comparative case studies involved visiting local heritage sites and analyzing architectural elements, geometry, and symbolism. These activities cultivated visual literacy, research, and interpretive abilities while fostering a

playful and reflective engagement with historical architecture. Field experiences solidified classroom learning through real-world context and exploration.

Suggested Readings/ Textbooks

- History of Architecture by Sir Banister Fletcher
- Indian Architecture: Buddhist and Hindu Period by Percy Brown
- A Global History of Architecture by Francis D.K. Ching
- The Art and Architecture of Islam by Richard Ettinghausen & Oleg Grabar

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2		2	1			3		2		
CO2	2		3	2		1	3		2	2	
CO3	3	2		3			2	3	1	1	2
CO4	2	2	2	2	1		3	2	3	3	
CO5	2	1	2	2			3	2	3	3	

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/Presentation/Viva	iCloud/Academia (online)

*(It is compulsory for a student to secure 50% marks in the Internal and End Term Practical Exam and Viva Voce separately to secure the minimum passing grade as per COA & University regulations.)

ADARAS402	Architectural Services II	L	T	S	P	C
Version	2.0	2	1	0	0	3
Category of Course	Major (Theory)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	High school-level knowledge of electricity and mathematics					

Course Perspective:

This course provides an in-depth foundation in electrical and lighting systems for buildings, combining core engineering principles with hands-on design and compliance. Blending theoretical lessons, industry standards, and practical experience, it prepares students to meet the contemporary demands of building services, integrating best practices from national and leading university syllabi.

Course Outcomes:

On completion of the course the learner will be:

CO1: Understanding fundamental electrical and lighting systems along with relevant regulations.

CO2: Applying electrical load calculations and wiring design for buildings.

CO3: Analysing efficient lighting systems integrating artificial and natural illumination.

CO4: Creating and interpreting electrical and lighting drawings using standard symbols.

Unit I: Fundamentals of Electrical Energy and Regulations

No. of Hours: 7

- Sources of electrical energy, conventional and alternate sources
- Generation, transmission, and distribution systems.
- Electrical terminology, units, and instruments for measurement and metering.
- Electrical safety: regulations, standards, Electricity Act, BEE, earthing principles, and protection devices.

Unit II: Electrical Wiring Systems and Load Calculations

No. of Hours: 8

- Types of wiring systems used in buildings
- Electrical load assessment: methods of calculating load for residential buildings
- Internal distribution: service connection, meter boards, distribution boards, switchgear layouts, load balancing, and earthing requirements.
- Solar and smart building integrations

Unit III: Lighting Principles and Design Methods

No. of Hours: 15

- Physics of light and Photometric terminologies,
- Types of Lamp and luminaire
- Lighting design: ambient, task, focal, decorative illumination schemes; natural day lighting principles; calculation.
- Integration of daylight and artificial lighting
- Instruments for measurement and efficiency analysis. Introduction to lighting software

Unit IV: Electrical and Lighting Drawings and Symbols

No. of Hours: 15

- National and international standard graphical symbols for electrical components and lighting fixtures as per NBC.
- Preparation of electrical layout drawings including wiring circuits, load distribution, lighting schemes, and control points for small to mid-size buildings.
- Use of drafting tools including manual drawing and CAD software to develop construction-ready drawings; load schedules and circuit diagrams.

Learning Experience:

Inside Classroom:

Lectures on core electrical and lighting principles, backed by real project case studies and building code examples. Guided tutorials on drawing preparation using CAD tools; illumination design exercises using standard calculation techniques. Integrated application of Eco Niwas Samhita requirements for energy-efficient design.

Outside Classroom:

Use of lux meters and field measurement of lighting. Market surveys and field visits: Hands-on experience with modern wiring fittings, luminaires, and controls. Hands-on Electrical Energy Audit and Simulation Using a Real-Life Project

Textbook:

1. Koenigsberger, O. H., Ingersoll, T. G., Mayhew, A., & Szokolay, S. V. (2015). Manual of Tropical Housing and Building: Part II – Building Services. Hyderabad: Universities Press (India) Private Limited.
2. Raina, K. B., & Bhattacharya, S. K. (2017). Electrical Design Estimating and Costing (Revised Edition). New Delhi: S. Chand & Company Ltd.

Reference Books

1. Kelly, K., & O'Connell, K. (2008). Interior Lighting Design: A Student's Guide. London: Blackwell Publishing.
2. Bureau of Indian Standards. (2016). National Building Code of India 2016, Part 8: Building Services, Section 2: Electrical and Allied Installations. New Delhi: Bureau of Indian Standards.
3. Mathew, J. (2010). Introduction to the Design and Analysis of Building Electrical Systems. Piscataway, NJ: Wiley-Blackwell.
4. IS 3043: 2018 — Code of practice for earthing
5. IS 732: 2019 — Code of practice for electrical wiring installations
6. IS 10322 (Part 1 to 5) — Luminaires – General requirements and tests
7. IS 3646 (All Parts) — Code of practice for interior illumination
8. BEE. (2017). ECBC User Guide
9. BEE. Energy Efficient Lighting Guidelines

Open Educational Resources (OER) –

1. Introduction to Electrical Engineering, By Prof. Bhim Singh, IIT Delhi
https://onlinecourses.nptel.ac.in/noc25_ee45/preview
2. Electricity and Electrical Wiring (EEW), By Dr. Antara Mahanta Barua, Krishna Kanta Handiqui State Open University, Guwahati
https://onlinecourses.swayam2.ac.in/nou25_ec07/preview

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	2		2		3	2	1		
CO2	1	3			2		2	3	2	1	
CO3	3	2	1		3		1	2	3	2	
CO4	2	2		3	1	1	2	1		3	

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

SEMESTER-V

ADARAD551	ARCHITECTURAL DESIGN–V	L	T	P	S	C
Version	1.0	2	0	0	6	8
Category of Course	Major (Studio)					
Total Contact Hours	120					
Pre-Requisites/ Co-Requisites	Basic Designing Creativity					

Course Perspective

This semester introduces students to the fundamentals of public and institutional space design, with a focus on campus planning and spatial hierarchy. Emphasizing institutional zoning, movement-flow analysis, and daylight optimization in learning spaces, the course integrates universal design guidelines and contour-based site planning to create inclusive, efficient, and responsive educational environments.

Course Outcomes

CO1: Understand institutional design standards and zoning regulations to frame campus-level spatial strategies.

CO2: Evaluate institutional layouts for spatial hierarchy, user accessibility, and movement-flow efficiency.

CO3: Develop site-responsive institutional designs by incorporating contours, natural features, and climatic considerations.

CO4: Apply principles of functional, geometric, and visual organization to repetitive learning units and shared spaces.

CO5: Create comprehensive institutional campuses with integrated programmatic functions, inclusive environments, and universal design principles.

Course Content

Design Challenge: Primary/Secondary School or Research Institute

Scale: Community–Institutional

Context: Educational zone or urban periphery

Complexity: High; multi-building cluster

Special Focus (Material, Construction, Form, Sustainability):

Concrete and brick, slab-beam frame, modular classrooms, verandah shading

Unit I: Introduction to formal public spaces

- Understanding Institutional typologies and zoning through case studies.
- Understanding campus design, zoning principles, learning space hierarchy.

Unit II: Concept with Site Analysis

- Application of zoning principles based on space hierarchy and site features. Overlap of site sections, slope and other features with design programme.

Unit III: Design Development at 2 scales: individual units and cluster organization.

- Learning Space Behavior and Universal Design
- Daylight in classrooms, circulation accessibility.

Unit IV: Representation and Output

- Zoning diagrams, plans, sections, models, final portfolio.

Learning Experience

Students will explore the design of institutional campuses by analysing zoning patterns, movement flow, and behavioural aspects of learning spaces. Through case studies and site visits, they will examine spatial hierarchy, daylight strategies in classrooms, and universal design principles. Studio exercises will encourage site-sensitive planning on contoured land, integrating natural features into functional layouts. By developing modular units and linking them through shared open spaces, students will learn to balance programmatic needs with accessibility and environmental responsiveness. Design critiques, collaborative discussions, and technical drawing workshops will support their growth throughout the semester.

Textbooks

1. Watson, Donald, “Time-saver Standards for Building Materials and Systems”, Tata McGraw Hill
2. Design Dialog: Dialectics of Design in Architecture, Prof. Shireesh A. Deshpande

Suggested Readings

1. The Discovery of Architecture: a contemporary treaty on ancient values and indigenous reality, M.N. Ashish ganju and Narendra Dingle
2. Christopher Benninger, “Letters to a Young Architect”

Open Educational Resources (OER)

1. Urban Design and Institutional Context - MIT Open Courseware: Offers insights into how institutional buildings integrate into urban environments and the impact of development regulations
2. Institutional Building Design - Coursera: Provides resources and courses on designing various types of institutional buildings, including educational, cultural, and industrial institutions.
3. Landscaping and Site Planning - edX: Covers principles of landscaping and site planning, including how to create functional and aesthetically pleasing outdoor spaces for institutional buildings.

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1		2	2	2			3		2		
CO2	2			2			3	2	3	3	
CO3	3	3			2		2	3	3	3	2
CO4	3	2	2	2			3	2	3	3	1
CO5	3	3	3	3	3		3	3	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

ADARWD552	WORKING DRAWING & DETAILS	L	T	P	S	C
Version	2.0	1	0	0	4	5
Category of Course	Major (studio)					
Total Contact Hours	75					
Pre-Requisites/ Co-Requisites	Construction & Materials I, II, III, IV					

Course Perspective

To introduce working drawings and their significance in the construction of buildings. To teach students the essential components of working drawings, notations, drawing standards, strengthen the students' knowledge about preparing g working drawings for various building elements.

Course Outcomes

CO1: Understanding requirements for drawings at various stages of a project.

CO2: Applying building regulations and codes into the project.

CO3: Applying all services and structural systems into a working drawing project.

CO4: Analysing various building materials and construction techniques required for construction.

CO5: Creating relevant drawings for different stages, from inception to final execution of a project.

Course Content

Unit I: Introduction to Working Drawing and Scope

No. of Hours 10

- Understand the purpose and significance of working drawings in architectural execution.
- Learn working drawings as a language of technical communication on site.
- Study essential components: dimensions, levels, nomenclature, structural grids.
- Understand the structure of title blocks, general notes, instructions, and material specifications.
- Develop awareness of explanatory construction details required for clarity on site.

Unit II: Architectural Working Drawings

No. of Hours 15

- Prepare a complete set of working drawings for a small two-storied building.
- Drawings include: demarcation plan, site plan, foundation layout, floor plans, elevations, and sections.
- Develop schedules and fixing details for doors and windows.
- Emphasis on accuracy, clarity, and completeness for site-level execution.

Unit III: Working Details

No. of Hours 20

- Prepare detailed drawings of architectural elements critical for site execution.
- Include joinery and fixing details of doors and windows.
- Draw staircase layouts: tread-riser details, railings, and finishes.
- Cover parapets, grills, and balcony railing designs and fixings.
- Develop a typical wall section with layers from foundation to roof terracing.

Unit IV: Services in Architectural Working Drawings

No. of Hours 15

- Integrate building services (electrical, plumbing, drainage) into architectural drawings.
- Prepare electrical layout: fans, lights, switchboards, DBs.
- Develop plumbing layouts for kitchens and toilets with fixture positions and piping systems.
- Draft sanitary and rainwater drainage systems with detailed annotations.
- Prepare working drawings for toilet and kitchen areas ensuring service coordination.

Unit IV: Finishing Drawings

No. of Hours 15

- Prepare detailed finish drawings for visual and construction clarity.
- Specify door and window frames, shutters, and finishes.
- Illustrate flooring patterns with materials and fixing techniques.
- Create skirting and dado layouts; explore wall finishes and cladding systems.
- Show plastering types and color schemes with legends for site implementation.

Learning Experience

This unit provides a comprehensive overview of the creation and interpretation of various types of architectural and construction drawings. It begins with site plans and progresses through detailed working drawings for different building elements. Students will learn to draft and understand foundation layouts, floor plans for different levels, and key sections and elevations of a building. The unit covers essential services drawings, including electrical, plumbing, sanitary, and drainage layouts, as well as rainwater disposal and harvesting systems. Detailed working drawings will be explored, focusing on doors, windows, staircases, and typical wall sections. The final component addresses finishing drawings, detailing frames, shutters, flooring patterns, wall tiles, cladding, and plaster patterns. This unit equips students with the skills necessary to produce and analyze detailed construction documentation, crucial for effective communication and implementation in building projects.

Textbooks

1. Deplazes, A. (2018). *Constructing Architecture: Materials, Processes, Structures : a Handbook*. Walter de Gruyter GmbH.
2. Eisele, J. (2003). *High Rise Manual (1st Edition)*. Birkhäuser Architecture.
3. Goyal, M. (2004). *Handbook of Building Construction: The Essential Source of Standard Construction Practices*. Amrindrea Consultancy.
4. Kumar, S. (2006). *Building Construction (16th Edition)*. Standard Publishers Distributors.
5. Punmia, D. B. (2005). *A Textbook of Building Construction*. Laxmi Publications (P) Ltd.

6. Rangwala, S. C. (2009). *Building Construction*. Charotar Publishing House Pvt. Limited.

Suggested Readings

1. Chudley, R. (1987). *Construction Technology, Volume 1 (Edition 2, illustrated)*. Longman Scientific & Technical.
2. Chudley, R. (1987). *Construction Technology, Volume 2 (Edition 2, illustrated)*. Longman Scientific & Technical.
3. CODES, I. S. (n.d.). *Civil Engineering for All*. Retrieved 2020, from <https://civilenggforall.com/cement-and-concrete-indian-standard-codes/>.
4. CPWD. (n.d.). *CPWD Publications*. Retrieved 2020, from Government of India Ministry of Housing & Urban Affairs Central Public Works Department: https://cpwd.gov.in/Documents/cpwd_publication.aspx
5. CPWD. (n.d.). *DELHI SCHEDULE OF RATES, 2018*. Retrieved 2020, from Government of India, MoHUA, CPWD: [https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_\(E_and_M\)_2018.pdf](https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_(E_and_M)_2018.pdf)
6. McKay, J. (2005). *Building Construction- Volume 4 (4th Edition)*. Orient Longman.
7. McKay, W. B. (2003). *Building Construction - Volume 1 (5th Edition)*. Orient Longman.
8. McKay, W. B. (2006). *Building Construction - Volume 2 (4th Edition)*. Orient Longman.
9. McKay, W. B. (1995). *Building Construction- Volume 3 (5th Edition)*. Orient Longman.
10. R. Chudley, R. G. (2006). *Building Construction Handbook (6th Edition)*. Butterworth-Heinemann.
11. R. Chudley, S. T. (2012). *Advanced Construction Technology (Edition 5, illustrated)*. Pearson.
12. Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 1)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding01>
- Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 2)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding02>

Open Educational Resources (OER)

1. "Introduction to Architectural Drawings" by MIT Open Courseware
2. "Construction Drawings and Details for Interiors" by Virginia A. McLeod
3. "BIM for Architecture, Engineering, and Construction" by Open Learn

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
-----------------------	-----	-----	-----	-----	-----	------	------	------	------	------

CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3
CO5	3	3			2	2	3	2	1	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations.

ADARAS553	ARCHITECTURAL STRUCTURES-V	L	T	S	P	C
Version	2.0	1	0	2	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Basics of Steel Structures and Mechanics Understanding of different steels structures and their connections					

Course Perspective:

The course deals with design of steel structures using “Limit State Design Method”. The design methodology is based on the latest Indian Standard Code of Practice for general construction (IS 800:2007). The subject covers all the necessary components such as material specifications, connections and elementary design of structural members for designing industrial steel structures.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Understanding the properties of steel and rolled steel sections

CO2: Understanding the load-carrying capacity of various connections.

CO3: Understanding tension members and compression members.

CO4: Understanding supported, unsupported, and plated beams and design of domes and shells.

Course Content:

Unit 1: Steel Connections

8 hours

- A-Structural Properties of steel and use of steel as a structural material
- B-Classification of rolled steel sections and their properties.
- C-Riveted, Bolted & Pinned connection.
- D-Welded connections.

Unit 2: Domes, Shells, and Folded Plates

7 hours

- A-Theory & design stresses in spherical domes
- B-Stresses in domes due to Universally distributed load
- C-Stresses in domes due to concentrated load at crown, combined UDL & concentrated loads and wind loads

Unit 3: Tension

15 hours

- A-Design of Tension members.
- B-Design of compression members, lacing & bracing

Unit 4: Beams

15 hours

- A-Analysis and Design of simple Beams & Plated Beams.

Learning Experience

In the study of steel as a structural material, students will first explore the structural properties of steel, including its classification and various rolled steel sections. The course will introduce the fundamental techniques of creating and analyzing different types of connections, such as riveted, bolted, pinned, and welded connections, emphasizing their applications and properties. Students will then delve into the design of tension members and compression members, including the design of lacing and bracing systems. Finally, the course will cover the analysis and design of simple beams and plated beams, providing a comprehensive understanding of steel structure design principles and their practical applications in construction.

Textbooks

1. Punmia, B. C., Jain, A. K. & Jain, A. K., Comprehensive Design of Steel Structures, Laxmi Publications (P) Ltd., New Delhi.

Reference Books

1. BIS (1984) Indian Standard Code of Practice for General Construction in Steel IS : 800.
2. Duggal, S. K. Design of Steel Structures, Tata McGraw Hill Publishing Company Ltd., New Delhi.
3. Singh, H. Analysis & Design of Steel Structures for Architects, Abhishek Publications, Chandigarh.
4. Arya, A. S. & Ajmani, J. L. Design of Steel Structures, Nem Chand & Bros., Roorkee.

Open Educational Resources (OER)

1. Steel Design" by the Open University
2. "Structural Steel Design" by NPTEL (National Programme on Technology Enhanced Learning)
3. Introduction to Structural Engineering" by MIT Open Courseware

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	1	1	2	1	3	2	2	1	1
CO2	2	3	1	1	2	1	3	2	2	2	1
CO3	3	3	2	2	2	1	3	3	3	3	2
CO4	3	3	2	2	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10

Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARHA501	HISTORY OF ARCHITECTURE IV	L	T	P	S	C
Version	2.0	1	0	0	1	2
Category of Course	Major (Theory)					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Cultural Awareness, Critical Thinking, Historical Sensitivity					

Course Perspective

This course traces the evolution of architectural styles from the colonial period in India to global movements such as Industrial-era architecture, Neoclassicism, Modernism, and Postmodernism. Emphasis is placed on historical context, technological advancements, material innovation, and socio-political influences that shaped architectural practice during these periods. Through lectures, case studies, and assignments, students will develop a critical understanding of how architecture responded to changing needs, ideologies, and aesthetics.

Course Outcomes

CO 1: *Identify and describe* key architectural styles from the colonial to postmodern period.

CO 2: Study how technological and political developments influenced architecture.

CO 3: *Compare* architectural philosophies and their visual/spatial expressions across time.

CO 4: *Critically* examine the legacy and relevance of these movements in contemporary practice.

CO 5: *Apply* historical knowledge in design thinking and contextual responses.

Course Content

Unit I: Colonial Architecture in India

8 hours

- Regional Focus: Buildings in Kolkata, Goa, Delhi, Mumbai.
- Colonial Influences: Portuguese (Goa), Dutch (Coromandel, Malabar). British (Delhi, Kolkata, Mumbai). French (Pondicherry).
- Architectural Styles: Early British princely Indian architecture. Birth of Indo-Saracenic architecture. Lutyens's Delhi.

UNIT II: Industrial Revolution and Neo-Classicism

4 Hours

A. Industrial Revolution

- Impact of industrialization on architecture; Iron, glass, steel innovations. Construction of Railway stations, exhibition halls
- **Theories & Movements: Arts and Crafts Movement, Chicago School** (transition to skyscraper architecture)

- **Relevant Architects:** Henry Labrouste (use of iron in civic architecture), Louis Sullivan (father of skyscrapers; “form follows function”), Daniel Burnham (urban planning) Peter Behrens (early modernist; corporate design)

B. **Neo Classicism:** Classical revival across Europe and colonies, Civic and institutional architecture, Palladian and Beaux-Arts influence

Unit III: Modern Architecture & theories

8 hours

- Le Corbusier's theories and manifesto.
- Contemporaneous architecture movements like Organic Architecture; Modern Urbanism; CIAM, and Athens Charter; Broad Acre city, Brutalism.
- Important Architects – Walter Gropius; Mies Van der Rohe; Frank Lloyd Wright; Le Corbusier; Alvar Aalto; Louis Kahn
- Modernism in India (e.g., Chandigarh, CPWD projects)

Unit IV: Post Modernism

10 Hours

- **Art Nouveau** (Transitional; pre-modern decorative movement), Curvilinear ornament, floral motifs, fluid forms, integration of art and craft. **Key Architects:** Antonio Gaudí, Victor Horta, Hector Guimard.
- **Art Deco** (Early 20th-century decorative modernity; reinterpreted in Postmodernism), Geometric motifs, rich materials, zigurat forms, sunbursts, and streamlined forms. Key Architects: William Van Alen (Chrysler Building), Raymond Hood, Nawab of Hyderabad’s buildings in India (local Art Deco)
- **Deconstructivism**(Fragmentation, abstraction, non-linearity, anti-formalism). challenging the formal order and rationality of Modernism. **Key Architects:** Frank Gehry, Zaha Hadid, Daniel Libeskind, Rem Koolhaas.

Learning Experience

Inside: Students engage in critical discussions, lectures, and visual analysis to understand the evolution of global architectural movements from colonial to postmodern times. They interpret architectural styles through timelines, annotated sketches, and theory-based activities. Group presentations, quizzes, and poster-making enhance peer learning and communication skills. Faculty-led case studies help decode ideologies, materials, and construction innovations. Activities like “Theory to Form” encourage application of architectural principles in design. Reflection journals and curated readings deepen conceptual understanding. Sketchbooks and short writing assignments further reinforce historical narratives, stylistic features, and the political or technological context influencing built forms across time.

Outside: Students participate in site visits to colonial-era towns, Art Deco neighborhoods, and modernist landmarks such as Chandigarh or Lutyens' Delhi. Field documentation, photography, and mapping exercises promote firsthand exploration of spatial and stylistic elements. Interactive assignments like “Mapping Colonial Urbanism” and design reinterpretation projects connect historical styles with contemporary creative expression. Visits to architectural archives, exhibitions, and heritage walks strengthen historical empathy and observational skills. Poster presentations and design challenges nurture visual communication and synthesis of ideas.

Students may also attend public lectures or seminars on architecture and conservation, fostering professional exposure and interdisciplinary dialogue.

Suggested Readings/ Textbooks

1. A Global History of Architecture” – Francis D.K. Ching, Mark Jarzombek, Vikramaditya Prakash
2. **World Architecture: A Cross-Cultural History”** – Richard Ingersoll and Spiro Kostof
3. **Modern Architecture: A Critical History”** – Kenneth Frampton
4. **Architecture and Independence: The Search for Identity—India 1880 to 1980”** – Jon Lang, Madhavi Desai, Miki Desai
5. **The Crystal Palace and the Great Exhibition”** – Kate Hill (Ed.)
6. **Towards a New Architecture”** – Le Corbusier
7. **The International Style”** – Henry-Russell Hitchcock and Philip Johnson
8. **Complexity and Contradiction in Architecture”** – Robert Venturi
9. **Art Deco Architecture: Design, Decoration and Detail from the Twenties and Thirties”** – Patricia Bayer
10. **Deconstructivist Architecture”** – Philip Johnson and Mark Wigley

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	2		2	2			3		2		
CO2	2	2	3	2	1		3		3	2	
CO3	2		2	2			3	2	3	2	
CO4	3	2	2	2	2	1	3	2	3	3	2
CO5	3	3	2	2	2	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/Presentation/Viva	iCloud/Academia (online)

*(It is compulsory for a student to secure 50% marks in the Internal and End Term Practical Exam and Viva Voce separately to secure the minimum passing grade as per COA & University regulations.

ADARAS502	Architectural Services III	L	T	S	P	C
Version	2.0	2	1	0	0	3
Category of Course	Major (Theory)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Basic Physics and basic mathematics					

Course Perspective:

This course provides a comprehensive understanding of architectural acoustics and fire safety, equipping learners to design and detail buildings that are functionally sound and compliant with safety codes. Through a combination of theoretical knowledge and applied design, students will be able to analyse, calculate, and implement effective solutions for noise control and fire protection in diverse building typologies.

Course Outcomes:

CO1: Understanding foundational principles, terminologies, and phenomena related to both acoustics and fire behaviour in the built environment.

CO2: Applying acoustical and fire protection design principles, including material selection, noise and fire control strategies, and system integration in architectural design.

CO3: Analysing the performance of acoustic environments and fire safety measures in various building typologies through case studies and design exercises.

CO4: Creating detailed designs and specifications for fire detection, protection, egress systems, and acoustical treatments, ensuring compliance with codes and occupant safety.

Course Content:

Unit I: Fundamentals of Architectural Acoustics & Human Hearing **No. of Hours: 10**

- Introduction to architectural acoustics: Need, history, importance in building design
- Properties of sound: propagation, velocity, frequency, amplitude, decibel scale, sound wave classification
- Sound perception: Sensibility of human ear, psychoacoustics, Free field conditions, Inverse Square Law

Unit II: Acoustical Design Principles and Noise Control **No. of Hours: 13**

- Room acoustics: Reverberation, Sabine's formula, absorption coefficients, material properties
- Acoustical defects & solutions: Echo, flutter, dead spots, surface treatments, shape/layout influence
- Noise control strategies: Sources/types of noise (indoor/outdoor); Sound insulation and transmission loss, Speech privacy, Urban/site noise mitigation, Market survey of sound systems

Unit III: Principles of Fire Science, Codes, & Egress Design **No. of Hours: 10**

- Fire fundamentals: causes, stages, spread, fire load, growth curve
- Fire-resistant design: Fire resistance of materials (concrete, steel, polymers, timber), compartmentation, containment, smoke barriers, Selection of safe construction materials
- Codes and regulations: National Building Code, essential fire safety standards, planning of egress/escape routes, refuge areas, emergency lighting/signage

Unit IV: Fire Detection, Suppression, and System Integration

No. of Hours: 12

- Fire detection: Smoke/heat detectors, alarm systems, manual call points
- Fire suppression systems: Sprinklers, hydrants, fire extinguishers, risers, fire doors, dampers, fire curtains.
- Integration and practice: High rise/access requirements, fire fighting shafts, drills & maintenance, building fire safety layout (Exercise & Case studies).

Learning Experience:

Inside Classroom: Lectures, tutorials on core theory, calculations, and standards. Case study discussions (auditorium acoustics / fire safety system failures & successes). Design/drawing exercises: acoustical treatment modification & fire escape layout

Outside Classroom: Market/field surveys of sound equipment and fire safety systems (Addition). Site visits to auditoriums/malls/offices for acoustic & fire system audit. Group assignments: code research, live project application. Mall or any public building visit for group-based acoustic and fire safety audit and analysis.

Textbook:

1. Koenigsberger, O. H., Ingersoll, T. G., Mayhew, A., & Szokolay, S. V. (2010). *Manual of tropical housing and building: Climatic design*. Universities Press.
2. Traister, J. E. (1995). *Security/Fire Alarm Systems: Design, Installation, and Maintenance*. McGraw-Hill.

Reference Books:

1. Ching, F. D. K. (2014). *Architecture: Form, space, and order* (4th ed.). Wiley.
2. Bureau of Indian Standards. (2005). *National building code of India* (2005 ed.). Bureau of Indian Standards.
3. Ermann, M. (2015). *Architectural acoustics illustrated*. Wiley.
4. Ehteshami, Keyoumars. (1997). *Fire Protection System Design Handbook*. McGraw-Hill Companies.

Open Educational Resources (OER) –

1. ISHRAE e-library for construction standards
2. Audio Engineering Society's free resources (www.aes.org)
3. Fundamentals of Fire Protection Engineering" by National Fire Protection Association (NFPA) <https://fire-gas.com/storage/2024/06/nfpa-fire-protection-handbook-20th.pdf>
4. "Fire Safety and Protection Systems" by MIT Open Courseware

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1		2					3				
CO2	2	3			2			3			
CO3		2			3				3	2	
CO4	3	3		2	2					3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

ADARTC554	Theory and Critical Thinking III	L	T	S	P	C
Version	1.0	0	0	3	0	3
Category of Course	Major					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	None					

Course Objectives:

This course aims to:

9. Introduce the idea of architecture as a cultural, sensory, and spatial experience.
10. Enable students to observe, think, and talk about architecture in informed ways.
11. Build a basic architectural vocabulary essential for design education.
12. Initiate a habit of reflective writing and visual description.

Course Outcomes:

CO1: Identify and **recall** fundamental architectural terms, elements, and basic spatial concepts such as space, form, light, and material.

CO2: Describe and **explain** spatial experiences using sensory and emotional observations from built environments.

CO3: Apply architectural vocabulary to **interpret** everyday spaces through sketching, storytelling, and reflective writing.

CO4: Analyse simple architectural texts and **evaluate** spatial experiences by forming personal responses and articulating viewpoints.

Course Content:

UNIT 1: Introduction to Architecture and Theory hours

15

- What is architecture? Basic definitions and scope.
- Architecture as shelter, space, experience, memory.
- What is theory? The role of reading, writing, and thinking in architecture.

Activity: Campus observation walks + discussion on “What is a good space?”

UNIT 2: Seeing, Sensing, and Describing Space hours

15

- Elements of architectural experience: light, material, texture, colour, proportion.
- Personal vs. public space, comfort and discomfort.
- Vocabulary of space: 20 key terms explained through drawings, models, and images.

Activity: Sketch + write: “My favourite place and why.” Vocabulary wall exercise.

UNIT 3: Thinking, Reading, and Reflecting

15

hours

- Reading short, accessible texts from architectural thinkers.
- Interpreting buildings: function, meaning, atmosphere.
- Speaking and writing: Journaling, oral storytelling, response essays.

Activity: Weekly journal entries + Read-Aloud and Reflect sessions.

Learning Experience:

Inside Classroom:

Outside Classroom:

Textbook:

11. Charles Correa – A Place in the Shade
12. Juhani Pallasmaa – The Eyes of the Skin
13. Christian Norberg-Schulz – Genius Loci
14. Le Corbusier – Towards a New Architecture
15. Christopher Alexander – A Pattern Language

Reference Books

Open Educational Resources (OER)

- “Why Architecture Matters” – TEDx
- “Spaces Speak” – Short video series

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	–	3	–	3	–	3	2	–	–	–
CO2	–	3	–	–	3	–	–	3	–	–	2
CO3	–	–	3	–	2	2	–	–	3	2	–
CO4	3	–	–	–	3	–	2	–	–	3	–

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

SEMESTER-VI

ADARAD651	ARCHITECTURAL DESIGN-VI	L	T	P	S	C
Version	1.0	2	0	0	8	10
Category of Course	Major (Studio)					
Total Contact Hours	150					
Pre-Requisites/ Co-Requisites	Basic Designing Creativity					

Course Perspective

This course introduces students to the complexities of urban mixed-use development, focusing on the integration of density, multifunctionality, and sustainable practices. Through the lens of mixed-use zoning and urban interface studies, students will examine transit-oriented development, street morphology, and form-façade articulation. Emphasis will be placed on understanding and applying urban bye-laws, building height regulations, and contextual responsiveness to design vibrant, inclusive, and regulated urban environments.

Course Outcomes

CO1: Understand mixed-use urban typologies and zoning principles applicable to dense urban settings.

CO2: Interpret urban movement patterns, access strategies, and street interfaces to inform design decisions.

CO3: Apply relevant urban bye-laws, building height regulations, and mixed-use zoning guidelines in design development.

CO4: Analyse microclimate and building envelope strategies to enhance energy efficiency and sustainability in design.

CO5: Evaluate multifunctional spatial layouts for functional efficiency, privacy, and operational synergy.

CO6: Create context-responsive urban mixed-use buildings that integrate diverse functions, optimized circulation, and cohesive form and façade articulation..

Course Content

Design Challenge: Urban Plaza + Cultural Hub + Retail Interface

Scale: Institutional–Urban

Context: Urban brownfield / city center edge

Complexity: High; zoning, access, service integration

Values Embedded: Density, accessibility, multifunctionality, urban integration

Unit I: Introduction to Mixed-Use Typologies and Urban Zoning

Understanding Zoning regulations, urban interface, transit-oriented development.

Unit II: Overlap of Conceptual Layout and Urban regulations.

- Conceptual layout using urban guidelines and bye laws, setbacks, road connections, entry-exit strategies. Site Access and Urban Landscaping

Unit III: Design Development integrating sustainable design parameters.

- Envelope Design and Microclimate
- Façade articulation, shading, thermal comfort.
- **Sustainable** Materials and Structural Systems Glass, steel, concrete, RCC + steel frame construction.

Unit IV: Representation and Output

- Urban plans, sections, elevations, models, final documentation, Site model, zoning sections, streetscape elevations, pedestrian flow diagrams

Learning Experience

Students will explore the complexities of urban mixed-use development through site-based design projects that integrate residential, commercial, and public functions. By studying mixed-use zoning, urban morphology, and transit-oriented development, learners will analyze street interfaces, building-height regulations, and bye-laws to inform their design. Emphasis will be placed on understanding the relationship between density, access, and form, with a focus on sustainable building envelopes, microclimate analysis, and façade articulation. Through iterative studio work, peer reviews, and contextual research, students will develop integrated urban solutions that balance functionality, livability, and regulatory compliance.

Textbooks

1. Time-Saver Standards for Building Types

Suggested Readings

1. Architectural Standard Ernst Peter Neufert Architects Data
2. Time-Saver Standards for Architectural Design Data

Open Educational Resources (OER)

1. "Apartment Design: Creating Sustainable, Healthy, and Community-Oriented Apartments" by *OpenLearn*
2. "Public Building Design and Urban Context" by *MIT OpenCourseWare*
3. "Architectural Design of Public Buildings" by *Coursera*

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				2	2	2	3		2		
CO2	2			2	2		2	2	3	2	

CO3	2		2		2	1	2	3	2	2	2
CO4	2	2		2	3		2	2	3	2	1
CO5	2	3	3	2	3	1	3	3	3	3	2
CO6	3	2	2	3	3	2	2	3	3	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

ADARCM652	Construction & Materials VI	L	T	P	S	C
Version	2.0	1	0	0	4	5
Category of Course		Major (Studio)				
Total Contact Hours		75				
Pre-Requisites/ Co-Requisites		Construction & Materials IV and V				

Course Perspective

This course introduces students to advanced construction technologies that enhance speed, precision, and sustainability in the built environment. Through the study of prefabrication systems, pre-stressed concrete, and modular construction, students will explore industrialized methods of building that align with contemporary architectural practice. Emphasis is placed on understanding construction techniques, material behavior, service integration, and detailing through both theoretical learning and practical application. The course prepares students to design and document efficient construction systems suited to modern architectural demands.

Course Outcomes

CO1: Explain the fundamental concepts, advantages, systems, and materials involved in prefabrication, pre-stressing, and modular construction techniques used in architectural design.

CO2: Apply knowledge of modular coordination, prefabrication methods, and pre-stressed systems to plan and design efficient, grid-based architectural components and assemblies.

CO3: Analyze construction challenges, comparative benefits, and service integration aspects of modular and prefabricated systems in contrast to traditional construction methods.

CO4: Create architectural drawings, technical details, and 3D representations of prefabricated, modular, and pre-stressed construction systems demonstrating real-world applicability.

Course Content

Unit I: Prefabrication Systems

- Introduction to Prefabrication- Definition, advantages, and challenges of prefabrication in construction
- Open prefab system: Design principles, components, and assembly methods
- Large panel prefab system: Types of large panels, joints, and connections
- Pre-casting Methods- Introduction to pre-casting techniques such as precast concrete, precast walls, and precast slabs
- Materials used in pre-casting and their properties
- On-site and Off-site Prefabrication
- Comparison between on-site and off-site prefabrication methods
- Planning and management considerations for on-site and off-site prefabrication

Unit II: Pre-stressed Concrete

- Design principles and construction techniques for pre-stressed concrete structures with large spans
- Pre-stressing, Pre-tensioning and post-tensioning Definition, advantages, and applications of pre-stressed concrete
 - Methods of Pre-stressing, Pre-tensioning, and post-tensioning techniques
 - Anchorage systems and their design considerations
- Application of Pre-stressed Concrete in Large Space Structures
- Case studies of notable pre-stressed concrete projects

Unit III: Modular Construction – Design Principles and Coordination

- Introduction to modular construction
- Modular coordination in architecture: grids, modules, standardization
- Planning and design of modular systems for efficient construction
- Role of modularity in sustainability and waste reduction
- Regulatory and dimensional standards (ISO grid, BIS codes, etc.)

Unit IV: Modular Construction – Applications and Detailing

- Components of modular systems: walls, floors, roofs, wet areas
- Service integration in modular systems (HVAC, plumbing, electrical)
- Prefabricated modular pods (toilets, kitchens, service shafts)
- Connections, tolerances, and fixing methods
- Transportation and on-site assembly challenges

Learning Experience

Students will engage in experiential learning through site visits to prefabrication and modular construction facilities, case study analyses of pre-stressed concrete structures, and workshops on modular detailing and service integration. Hands-on exercises will include drawing modular grids, detailing construction joints, and developing scaled models of prefabricated components. Interaction with industry professionals and analysis of real-world projects will help students bridge theoretical concepts with construction practice, preparing them for design implementation in professional settings.

Suggested Readings/ Textbooks

1. Barry, R (1986) Construction of Buildings, London, vol. 1 to 5.
2. BIS (2011) National Building Code, SP 7, Bureau of Indian Standards.
3. Deplazes, A. (2018). *Constructing Architecture: Materials, Processes, Structures : a Handbook*. Walter de Gruyter GmbH.
4. Eisele, J. (2003). *High Rise Manual (1st Edition)*. Birkhäuser Architecture.
5. Goyal, M. (2004). *Handbook of Building Construction: The Essential Source of Standard Construction Practices*. Amrindrea Consultancy.
6. Kumar, S. (2006). *Building Construction (16th Edition)*. Standard Publishers Distributors.

7. Punmia, D. B. (2005). *A Textbook of Building Construction*. Laxmi Publications (P) Ltd.
8. Rangwala, S. C. (2009). *Building Construction*. Charotar Publishing House Pvt. Limited.

Suggested Readings

1. Foster, Stroud (1963) Mitchell's Advanced Building Construction, Allied Publishers Private Limited, Bombay.
2. McKay, W. B. (1972) Building Construction (Metric), Longman, London, vol. 1 to 5.
3. Prabhu, Balagopal T. S. (1987) Building Drawing and Detailing, Spades Publishers Pvt. Ltd., Calicut.
4. Punmia, B. C. (2005) Building Construction, Firewell Media, Delhi.
5. Singh, Gurucharan (1981) Building Construction Engineering, Standard Book House, New Delhi.
6. CPWD. (n.d.). *CPWD Publications*. Retrieved 2020, from Government of India Ministry of Housing & Urban Affairs Central Public Works Department: https://cpwd.gov.in/Documents/cpwd_publication.aspx
7. CPWD. (n.d.). *DELHI SCHEDULE OF RATES, 2018*. Retrieved 2020, from Government of India, MoHUA, CPWD: [https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_\(E_and_M\)_2018.pdf](https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_(E_and_M)_2018.pdf)
8. McKay, J. (2005). *Building Construction- Volume 4 (4th Edition)*. Orient Longman.
9. McKay, W. B. (2003). *Building Construction - Volume 1 (5th Edition)*. Orient Longman.
10. McKay, W. B. (2006). *Building Construction - Volume 2 (4th Edition)*. Orient Longman.
11. McKay, W. B. (1995). *Building Construction- Volume 3 (5th Edition)*. Orient Longman.
12. R. Chudley, R. G. (2006). *Building Construction Handbook (6th Edition)*. Butterworth-Heinemann.
13. R. Chudley, S. T. (2012). *Advanced Construction Technology (Edition 5, illustrated)*. Pearson.
14. Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 1)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding01>
Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 2)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding02>

Open Educational Resources (OER)

1. <https://nptel.ac.in/>
2. <https://swayam.gov.in/>

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARAS653	Architectural Services IV	L	T	S	P	C
Version	2.0	2	1	0	0	3
Category of Course	Major (Theory)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	High school-level understanding of thermodynamics and basic mathematics					

Course Perspective:

This course imparts foundational and advanced concepts of environment, climate, mechanical ventilation, air conditioning, and building mobility systems such as lifts and escalators. It equips learners to design and optimize building comfort through the integration of HVAC and mechanical transport systems, considering factors such as human comfort, air movement, equipment selection, and spatial requirements. Key aspects of building automation, energy conservation, and architectural considerations for mechanical systems are also introduced.

Course Outcomes:

CO1: Understanding the principles and importance of mechanical ventilation, air conditioning, and fire safety for enhanced building comfort and safety.

CO2: Applying HVAC and ventilation concepts including air-distribution, system components, and equipment for various building types.

CO3: Understanding and analyzing the design, operation, and spatial planning mechanical and mobility systems.

CO4: Integrating knowledge of HVAC, mobility systems, and building automation to optimize mechanical services in building projects according to codes and sustainability principles.

Course Content:

Unit I: Human Comfort, Ventilation & Air Conditioning Principles No. of Hours: 10

- Principles of mechanical ventilation — methods, equipment, ventilation rates for occupancies.
- Thermal comfort parameters; psychrometric charts; indoor air quality and architectural implications.
- Fundamentals of refrigeration and air conditioning cycles, gas laws, Carnot cycle, and zoning advantages.

Unit II: Air Conditioning Systems

No. of Hours: 15

- Types of air conditioners: Window units, split, ducted, packaged systems; central air conditioning components.
- Air distribution systems: ducts, fans, filters, diffusers, dampers; energy conservation methods.
- Location and architectural considerations of HVAC equipment; introduction to passive cooling and clean rooms.

Unit III: Mobility Systems**No. of Hours: 10**

- Lift types, operating principles, rated capacities, lobby planning, group configurations, and relevant code standards; core specifications and sectional details of lift shafts.
- Escalators and travelators: types, operation, safety features, and application in building design.
- Conveyors, dumbwaiters, automated parking systems, and technological innovations in vertical transportation.

Unit IV: Building Automation, Security & Access Control**No. of Hours: 10**

- Introduction to Building Management Systems (BMS) and integration with HVAC and mechanical systems.
- Fire detection, alarm systems, intercommunication, and monitoring devices.
- Access control systems, electronic security, and coordination with mechanical and vertical transport systems.

Learning Experience:

Inside Classroom: Theoretical lectures on system principles and design criteria. Case studies, design exercises, and system layout development. Interactive sessions with industry experts and MEP professionals.

Outside Classroom: Site visits to buildings with HVAC, lifts, and automation systems. Market surveys of mechanical equipment and technologies. Group project work and practical calculations for AC loads, vertical transport requirements, and automation integration.

Textbook:

1. Grondzik, W.T., Kwok, A.G., Stein, B., & Reynolds, J.S. (Latest Edition). *Mechanical and Electrical Equipment for Buildings*. Wiley.
2. Mitchell, J.W., & Braun, J.E. (Year). *Principles of Heating, Ventilation, and Air Conditioning in Buildings*. Publisher.

Reference Books

1. Rush, R. (1991). *The Building Systems Integration Handbook*. American Institute of Architects.
2. Parlour, R.P. (2008). *Building Services: A Guide to Integrated Design: Engineering for Architect*. Integral Publishing.

Open Educational Resources (OER) –

1. Refrigeration and Air-conditioning. By Prof. Ravi Kumar, IIT Roorkee
https://onlinecourses.nptel.ac.in/noc19_me58/preview
2. Overview of Building Elevator Systems, A. Bhatia, B.E.
https://pdhonline.com/courses/m376/m376_new.htm

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1		2					3				
CO2	2	3			2			3			
CO3		2			3				3	2	
CO4	3	3		2	2					3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% to secure minimum passing grade as per COA & University regulations)

ADARCH654	CONTEMPORARY HISTORY/ SEMINAR	L	T	P	S	C
Version	1.0	0	0	0	2	2
Category of Course		Major (Theory)				
Total Contact Hours		30				
Pre-Requisites/ Co-Requisites		Cultural Awareness, Critical Thinking, Historical Sensitivity				

Course Perspective

This course critically examines architectural movements, theories, and practices that emerged after the decline of Postmodernism (1980s onward). It focuses on evolving narratives in global and regional contexts including Deconstructivism, Critical Regionalism, High-tech, Sustainable Architecture, Parametricism, and contemporary Digital Practices. The course encourages students to analyze architecture as a cultural, technological, and socio-political response to contemporary challenges.

Course Outcomes

CO 1: *Identify* key architects, movements, and technologies shaping post-postmodern architecture.

CO 2: *Explain* the theoretical and technological basis of futuristic architectural expressions.

CO 3: *Critique* futuristic projects using analytical frameworks.

CO 4: *Compare* different approaches to future-oriented design (e.g., parametric vs. sustainable).

CO 5: *Propose* speculative design ideas for future urban or architectural environments.

Course Content

Unit I: Digital Turn and Morphogenetic Architecture

8 hours

- *Architecture as machine:* exposed structural and mechanical systems. Key architects: Richard Rogers (Lloyd's Building), Norman Foster (HSBC, Reichstag Dome), Renzo Piano (Centre Pompidou with Rogers). Use of prefabrication, steel, glass, and services-as-architecture
- *Blobitecture & Digital Morphogenesis:* Greg Lynn's ideas: "Animate Form" and the influence of animation software. Blobs: Soft, fluid, topological geometries. Case studies: Embryological House (Greg Lynn), Kunsthau Graz (Peter Cook), Selfridges Birmingham (Future Systems). From biology to form-generation; Digital morphogenesis: growth patterns, emergence, optimization. Tools: Maya, Grasshopper plugins (Kangaroo, Galapagos)
- *Parametricism and Biomimicry:* Defined by Patrik Schumacher, Core principles: continuous differentiation, correlation, and hierarchy. Role of algorithms in controlling variables: form, structure, performance. Zaha Hadid Architects (ZHA): Heydar Aliyev Centre, Galaxy SOHO, Beijing Daxing Airport.

UNIT II: Future Forms & Aesthetic Movements

4 Hours

- *Neo-Futurism*: Aesthetically bold, technologically optimistic, human-centric design for the future. Originates from Futurism (early 20th-century), redefined for the digital-ecological era. Key figures and practices: Santiago Calatrava – expressive, kinetic forms inspired by nature and motion. MAD Architects (Ma Yansong) – “Shanshui City” concept; soft urbanism blending landscape, tradition, and technology. Case Studies: City of Arts and Sciences, Valencia – Calatrava, Absolute Towers, Mississauga – MAD, Harbin Opera House, China – MAD,
- *Futurism in built and unbuilt projects*: Architecture as speculation, narrative, and provocation. Role of competitions, manifestos, and speculative proposals in design innovation. The boundary between art, fiction, and architecture. Case Studies: Ocean Spiral City, Japan – underwater city concept, Spaceport America, Norman Foster – commercial space travel architecture, The Line, NEOM – linear city as digital utopia or dystopia

Unit III: Architecture & Environmental Futures

8 hours

- *Ecological urbanism*: Definition and origins (Mohsen Mostafavi's framework), Integrating ecology, landscape, and infrastructure in urban form. Examples: Hammarby Sjostad (Sweden), Masdar City (UAE), Portland EcoDistricts (USA).
- *Bioclimatic design*: Climate-responsive architecture: orientation, thermal mass, shading Passive cooling and heating techniques, Courtyards, wind towers, green roofs/walls. Case Studies: Sangath by B.V. Doshi, Aranya Housing, Eastgate Centre (Zimbabwe).
- *Net-zero buildings*: Definitions: Net-zero energy, water, carbon. Regenerative design principles (beyond sustainability). Materials, energy loops, and circular construction systems
Case Studies: Bullitt Center (Seattle), Pixel Building (Australia), PAE Living Building (USA), Indira Parya varan Building (New Delhi).

Unit IV: Smart Cities & Digital Realities

10 Hours

- *Smart Cities & Urban Sensors*: What defines a “Smart City”. Components: sensors, mobility systems, energy grids, public service automation. Role of architects in designing smart public infrastructure. Case Studies: Songdo, South Korea, Barcelona Smart City, GIFT City, India
- *IoT in Architecture & AI-driven Design*: Internet of Things (IoT) in buildings: automation, monitoring, adaptive environments, AI in generative design: tools like Autodesk’s Project Refinery, Spacemaker. Predictive analytics for occupancy, lighting, and energy efficiency. Ethical considerations in AI-driven architecture.
- *Material Futures*: Smart materials, 4D printing: Smart materials: thermochromic glass, self-healing concrete, shape-memory alloys. Introduction to 4D printing: time-responsive materiality. Applications in adaptive architecture and disaster resilience. Case Studies: MIT Self-Assembly Lab projects, MX3D 3D printed bridge (Amsterdam).
- *VR, AR, Metaverse in design*: Virtual Reality (VR) in architectural walkthroughs and design testing. Augmented Reality (AR) on-site overlays, construction visualization. The Metaverse: spatial design in virtual realms. Architectural practices exploring immersive design: Space Popular, Zaha Hadid Architects' Metaverse projects, BIG’s Metaverse city concepts.

Learning Experience:

Inside: Students engage with contemporary architectural movements through lectures, visual analysis, and interactive discussions. Topics like Parametricism, Deconstructivism, and Biomimicry are taught using case studies, animation demos, and tech-integrated workflows. Readings from Schumacher, Kolarevic, and Tony Fry guide theoretical grounding. Students analyze speculative designs and futurist manifestos, engage in design sketching, and participate in theory-to-form exercises. Presentations on smart materials, 4D printing, and AI-driven design foster critical thinking. Assignments such as abstraction from nature or drawing future cityscapes help them apply learned concepts creatively, bridging design thinking with ecological, technological, and socio-political awareness.

Outside: Students participate in immersive activities like tech lab visits, VR/AR walkthroughs, and documentation of smart infrastructure in cities like GIFT City or smart campuses. They conduct field-based case studies on responsive façades or adaptive reuse projects and interact with professionals in AI-integrated design or ecological planning. Hands-on sessions in digital tools (e.g., Rhino, Grasshopper, Twinmotion) support speculative design modeling. Participation in future design competitions or workshops on biomimicry and kinetic systems enriches applied learning. Through virtual exhibitions, design challenges, and Metaverse pavilion concepts, students explore the evolving boundaries of architecture across physical and digital realities.

Suggested Readings/ Textbooks

- The Autopoiesis of Architecture – Patrik Schumacher
- Deconstructivist Architecture – Philip Johnson & Mark Wigley
- Architecture in the Digital Age – Branko Kolarevic
- Future Practice – Rory Hyde
- The City of Tomorrow – Carlo Ratti & Matthew Claudel
- Design Futuring – Tony Fry
- The Architecture of the Future – A+U, DOMUS archives
- ArchDaily, Dezeen, eVolo Magazine (for ongoing trends and competitions)

CO \ PO/PS O	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO 5
CO1	2	2	2	2			3	2	2		
CO2	2	3	2	2	2		3	2	3	2	
CO3	2	2	2	3			3	2	3	3	
CO4	3	2	2	2	3	1	3	3	3	3	2
CO5	3	3	2	2	3	2	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/Presentation/Viva	iCloud/Academia (online)

*(It is compulsory for a student to secure 50% marks in the Internal and End Term Practical Exam and Viva Voce separately to secure the minimum passing grade as per COA & University regulations.)

ADADRM655	RESEARCH METHODOLOGY	L	T	S	P	C
Version	1.0	2	1	0	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Familiarity with using word processing software (e.g., MS Word) and basic computer skills is recommended.					

Course Perspective:

This course introduces students to the fundamentals of research methodology within the context of interior design. It aims to develop critical thinking, analytical, and documentation skills essential for evidence-based design practice. Through a blend of theory and applied learning, students will explore how to define research problems, conduct literature reviews, collect and interpret data, and structure research reports. The course emphasizes the integration of digital tools to support writing and visualization, preparing students to apply research principles both in academic projects and professional design practice.

Course Outcomes:

CO1: Understanding the fundamental concepts, types, and purposes of research and research design.

CO2: Identify appropriate data collection methods and apply basic techniques for data analysis and presentation.

CO3: Conduct literature reviews and formulate research problems with clear objectives.

CO4: Use basic digital tools for report writing and citation management in research documentation.

Course Content:

Unit 1: Fundamentals of Research

10 hours

- A-Definition, scope, characteristics, and classifications of research
- B-Types and purposes of research design; factors affecting design; principles of good design

Unit 2: Data Collection and Interpretation

10

hours

- Types and sources of data; methods of data collection
- Data analysis basics: tabulation, array, range, frequency distribution
- Presentation methods: charts, histograms, polygons; basics of correlation and regression

Unit 3: Research Process and Literature Review

10 hours

- Understanding philosophical foundations and formalising research problems.
- Conducting literature reviews; identifying and defining research gaps
- Selecting appropriate research methodology; outlining procedures for data collection and analysis

Unit 4: Tools and Techniques for Research Writing

hours

15

- Introduction to citation/reference managers
- Using MS Word or Google Docs for formatting reports and theses
- Visual tools for report graphics: Canva, PowerPoint basics

Learning Experience

Inside Classroom

Inside the classroom, students will participate in lectures, discussions, and case studies to understand key research concepts, data analysis techniques, and report writing specific to interior design. They will engage in hands-on sessions to learn digital tools such as citation managers (Zotero, Mendeley), MS Word for formatting and structuring reports, and statistical software like SPSS and Excel for data interpretation. Group activities and peer reviews will help students practice drafting research proposals, conducting literature reviews, and documenting their work in design journals. In addition, guided sessions will focus on developing visual and oral presentation skills to communicate research findings effectively.

Outside Classroom

Outside the classroom, students will independently explore scholarly articles and conduct field visits to design studios or live projects for data collection practice. They will collaborate with peers on mini research projects, surveys, and case studies to apply classroom learning in real contexts. Digital tools like Canva and Tableau will be used to enhance data visualization and presentation, while tools such as Turnitin will help ensure academic integrity. Students will also prepare research posters, digital portfolios, and oral presentations to showcase their work in seminars, exhibitions, and workshops, building confidence and professional communication skills in the context of interior design research.

Textbooks

1. Kothari, C. R. (2004). *Research Methodology: Methods and Techniques*. New Age International.

Reference Books

1. Groat, Linda & Wang, David (2013). *Architectural Research Methods* (2nd Edition). Wiley.

Open Educational Resources (OER)

4. <https://open.umn.edu/opentextbooks/textbooks/894>

Course Outcomes (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	1	2	1	1	1	3	2	2	2	1	2
CO2	2	2	2	1	2	1	2	2	3	2	1	3
CO3	2	1	2	2	1	1	3	2	2	2	2	2
CO4	1	2	1	3	2	1	2	2	2	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARTP601	TOWN PLANNING	L	T	P	C
Version	2.0	2	0	0	2
Category of Course	Major				
Total Contact Hours	30 HR				
Pre-Requisites/ Co-Requisites	Knowledge of cities, basic design Logical thinking				

Course Perspective

The course aims to introduce students to the fundamental concepts, theories, and practices of town planning while emphasizing the interrelationship between architecture and its broader urban context. It explores the historical evolution of planning philosophies, comparing global planning trends with traditional and contemporary Indian methodologies. The course enables students to critically evaluate the relevance and application of these principles in shaping sustainable and inclusive urban environments in the present day. It also prepares them to understand governance structures, policy frameworks, and the socio-economic and environmental impacts of urban planning decisions. Students will gain insight into emerging challenges such as climate change, rapid urbanization, and infrastructure needs while developing a responsible design approach aligned with town planning objectives.

Course Outcomes

- CO1:** Identify the fundamental concepts, terminologies, and evolution of town planning, including key global and Indian planning theories and practices.
- CO2:** Understand the relationship between architectural development and its broader urban, social, historical, and environmental context.
- CO3:** Apply planning principles and methodologies to analyse urban issues such as land use, zoning, infrastructure, and sustainable development.
- CO4:** Create innovative and context-sensitive town planning proposals that address contemporary urban challenges while integrating sustainability, inclusivity, and policy frameworks.

Course Content

Unit-I. Introduce to Town Planning:

4 HR

- **Introduction-** Definition, scope, and objectives of town planning and Importance of planning in architecture and urban development.
- **Principle and origin of Town Planning:** Principles of town planning, Origin and evolution of towns: ancient to modern cities, Types of towns and their characteristics.
- Role of town planners and planning authorities.

UNIT II. Historical Development and Global Trends:

4 HR

- **Evolution of planning theories:** - Historical development of town planning in India and globally. Grid, Organic, Radial, Linear cities with examples.
- **Modern movements:** Planning concepts related to City beautiful movement (Chicago, Chandigarh), Urban Utopia (Broadacre), Garden city (Letchworth), Radburn Theory (Radburn) and Neighbourhood planning.
- **Planning Theories & Models** – Theories by Le Corbusier, Sir Patrick Geddes, Sir Ebenezer Howard, C. A. Doxiadis, Clarence Perry and Lewis Mumford. – their relevance to Indian conditions.
- Comparative study of global vs. Indian planning approaches

UNIT III. Planning Processes and Urban Components:

10HR

- **Urban structure and components:** Land use, transportation, open spaces, public amenities.
- **Master Plan, Regional Plan, and Development Plan** – Purpose and process. Planning standards and norms (URDPFI Guidelines)
- **Introduction about Professional Bodies:** Professional Bodies in planning profession such as T.C.P.O. and I.T.P.I. etc. Various Planning authorities like D.D.A., CIDCO, HUDA/ HSVP etc. Introduction to Local and Self Government in urban as well as rural areas, introduction to 73rd and 74th amendment to the constitution.
- **Planning tools:** GIS (Basic Introduction), surveys, analysis, and forecasting techniques

UNIT IV. Contemporary Issues and Future Directions:

12HR

- **Urbanization and Housing Challenges:** Urbanization trends and the growth of informal settlements. Housing issues in rapidly growing urban centres, including slums and affordability concerns.
- **Sustainable and Resilient Urban Planning:** Strategies for sustainable urban development and resource efficiency. Integration of disaster risk reduction and climate change adaptation in urban planning.
- **Smart and Future-Ready Cities:** Concepts of Smart Cities, Eco-Cities, and Transit-Oriented Development (TOD)
- **Learning from Practice: Case Studies:** Critical evaluation of successful and failed planning projects from India and around the world. Lessons learned and their relevance to future planning approaches.

Learning Experience:

The learning experience for students in the Town Planning course is designed to be immersive, interdisciplinary, and practice oriented. Through interactive lectures, visual presentations, and analytical discussions, students will explore the evolution of planning concepts, urban growth patterns, and the socio-cultural context of city development. Emphasis will be placed on understanding planning theories both globally and within the Indian context, supported by case studies and comparative analyses.

Inside Classroom

Interactive Lectures and Visual Presentations: Use of case studies, documentaries, and urban evolution diagrams to explain planning theories and the historical development of cities. Visualization of urban growth patterns through maps and images to enhance conceptual clarity.

Outside Classroom

Field Visits and Observational Studies: Visit to local planning bodies and On-site observations of different town layouts and neighbourhood typologies. Hands-on Workshops and Exercises: Small group exercises in zoning layout, land use planning, and applying URDPFI standards.

Textbooks

1. Rangwala, S. C. and Others Town Planning, Charotar Pub. House, Anand.
2. G.K.Hiraskar, Town Planning

Reference Books/Materials

1. Arthur B. Gallion and Simon Eisner, The Urban Pattern – City planning and Design, Van Nostrand Reinhold company.
2. John Ratcliffe, An Introduction to Town and Country Planning, Hutchinson 1981
3. Kevin Lynch -Image of City.
4. Sir Ebenezer Howard- Tomorrow – Peaceful Path to Social Reforms.
5. URDPFI Guidelines for Planning by TCPO.

Open Educational Resources (OER)

- 1."Introduction to Urban Planning" - A comprehensive guide on urban planning principles, including key concepts, terminology, and historical evolution. Available at MIT Open Courseware.
2. "Urban Planning and Design" - A textbook covering the fundamentals of town and regional planning, including planning processes, standards, and various planning theories. Accessible at SAGE Open.
- 3."Sustainable Urban Planning" - An educational resource that explores modern approaches to urban planning, including green cities, compact cities, and smart cities. Found at Coursera.

Course Code	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
ADARTP601	CO1	3	-	-	3	-	-	3	-	3	-	-
	CO2	2	2	-	-	-	-	3	-	3	-	-
	CO3	3	3	2	3	3	1	3	-	-	-	-
	CO4	-	-	3	3	3	2	2	-	-	-	-

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

Total Maximum Marks: 100					
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Examination separately to secure minimum passing grade).

ADARNS656	NATIONAL STUDY TOUR/ PROJECT	L	T	P	S	C
Version	2.0	0	0	0	0	2
Category of Course		Major (Practical)				
Total Contact Hours		30				
Pre-Requisites/ Co-Requisites		Site and Urban planning				

Course Perspective

This design studio focuses on **urban mixed-use developments**, integrating residential, commercial, and public spaces within a transit-oriented urban framework. Students will examine zoning regulations, density control, urban morphology, and building-height restrictions to develop site-specific proposals. The studio emphasizes **conceptual layouts that respond to urban guidelines, sustainable design strategies, microclimate-responsive envelopes, and façade articulation**. Through iterative design exploration and contextual research, students will deliver urban-scaled mixed-use proposals with strong regulatory and environmental grounding.

Course Outcomes:

- **CO1:** Understanding zoning regulations, urban interfaces, and transit-oriented development in mixed-use typologies.
- **CO2:** Applying urban guidelines and bye-laws to conceptual layouts, including site access and circulation strategies.
- **CO3:** Analysing sustainable design parameters for mixed-use envelopes, façade articulation, and microclimate adaptation.
- **CO4:** Creating comprehensive mixed-use design outputs through drawings, models, and urban representation techniques.

Guidelines for the Study Trip

The studio will begin with an **introduction to mixed-use typologies and zoning frameworks**, enabling students to interpret building regulations, density limits, and transit-oriented development strategies.

Students will then develop **conceptual layouts** that align with bye-laws, setbacks, street connections, entry-exit strategies, and pedestrian movement patterns. Attention will be given to **urban landscaping, site access, and interface with public spaces**.

The **design development stage** will integrate **sustainable parameters**, including façade articulation, building envelope design for thermal comfort, and microclimate-responsive

planning. Sustainable materials and structural systems—such as glass, steel, RCC, and hybrid construction—will be considered for feasibility and environmental impact.

Finally, students will produce **urban plans, elevations, sections, streetscapes, pedestrian flow diagrams, and physical/digital models** to communicate the proposal. A final presentation will consolidate the urban vision, regulatory compliance, and sustainability integration.

Learning Experience

Students will work on site-based projects, simulating professional urban design studio workflows. Through research, zoning analysis, conceptual exploration, and iterative refinement, they will engage with the complexities of functional program overlaps in mixed-use typologies. Faculty reviews, peer feedback sessions, and contextual studies will guide project evolution. The focus will remain on balancing urban density, connectivity, livability, and sustainable performance.

Evaluation Scheme

	Evaluation Components	Weightage
DOCUMENTATION (50 Marks)	3. Zoning analysis and urban interface diagrams 4. Conceptual layouts adhering to bye-laws, setbacks, and site access	20 Marks
	1. Sustainable design integration – façade, envelope, and microclimate strategies 2. Draft design presentation with iterative development evidence	30 Marks
APPLICATION & PRESENTATION (50 Marks)	1. Final urban design drawings (plans, sections, elevations, zoning sections, streetscape elevations)	21 Marks
	3. Physical or digital site model and pedestrian flow diagrams 4. Final internal jury presentation (visual + verbal articulation)	30 Marks

SEMESTER-VII

ADARAD751	ARCHITECTURAL DESIGN-VII	L	T	S	P	C
Version	2.0	2	0	8	0	10
Category of Course	Major (Studio)					
Total Contact Hours	150 hrs					
Pre-Requisites/ Co-Requisites	Conceptualization and functioning of Buildings/ Integration of Services, Structural and Construction systems					

Course Perspective

This course focuses on designing for multiple user groups while addressing the complex relationship between individual needs and urban spatial contexts. Students will explore how societal aspirations like aesthetic form and expression can be balanced with technical and environmental requirements. Emphasis will be placed on climate-responsive design, integration of HVAC, MEP, and structural systems, as well as understanding envelope performance. Learners will engage with green rating systems such as LEED and GRIHA, adopt BIM workflows, and develop skills in interdisciplinary coordination to create holistic, code-compliant urban architectural solutions.

Course Outcomes

CO1: Understand the design requirements for diverse user groups, incorporating site context, climate responsiveness, building services, and development bye-laws.

CO2: Analyse the implications of urban density, mixed land use, ground coverage, and development control regulations in the design process.

CO3: Apply appropriate structural systems and materials to support spatial design and architectural form.

CO4: Develop a comprehensive design process leading to spatial solutions for public buildings or housing typologies.

CO5: Integrate services, structural systems, and regulatory frameworks into architectural designs catering to diverse user needs.

Course Content

Design Challenge: Urban Business District, Housing, townships.

Scale: Institutional–Urban

Context: Urban brownfield/ greenfield.

Complexity: High; zoning, access, service integration

Values Embedded: Density, accessibility, multifunctionality, urban integration

Unit I: Introduction to high density design with respect to the function.

Case study analysis and comparison in terms of articulation of functions as expressions of high-density design.

Understanding of issues to be addressed for the design project pertaining to high density design: Density, mixed land use, ground coverage, development controls, type of occupancy, social strata, social status and prevalent social strata

Unit II: Introduction to site and creation of programme

Understanding site, its urban/ rural/ edge context and the need for the given programme based on user requirements (derived from surveys). Application of urban regulations and arriving at final programme with zoning/ block model.

Unit III: Design Development.

Understanding of urban systems, services and their integration with the project. Issues of hierarchy, identity of space, public and private scales of space to be addressed. Integration of community institutions etc. Detailing for the disabled and the elderly. Details from the individual unit to immediate shared space to communal space shall be worked out

Integration of socio cultural layer of the occupants shall form a strong fabric in the ultimate weave of the design. Projects shall aim at developing a very sensitive attitude towards micro level human habitation requirement and role of architecture in enhancing the urban skyline.

Unit III: Design Output.

Besides presentation drawings and models, the following should be incorporated into the portfolio: MEP systems, structural systems, detailing and construction systems

Learning Experience

In this course, students will focus on two key areas: the design of mid-rise apartments and public buildings. Students will explore the multifaceted challenges of designing mid-rise buildings. Projects will involve detailed design from the individual unit to shared communal spaces, aiming to enhance the quality of living and reflect the socio-cultural fabric of the occupants. Examples include apartments for various demographic groups and luxury flats. Students will investigate the role of public spaces within buildings and their interaction with the urban environment.

Reference books

1. Time-Saver Standards for Building Types
2. Architectural Standard Ernst Peter Neufert Architects Data
3. Time-Saver Standards for Architectural Design Data

Open Educational Resources (OER)

<https://nptel.ac.in/>

<https://swayam.gov.in/>

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1			2	2	2		3				
CO2		2	3			2	3	2	3	2	
CO3	2	3		2		1	3	3	3	3	2
CO4	3	2	2	2	2		2	3	3	3	1
CO5	3	3	3	3	3	2	3	3	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

Quiz/Assignment/ presentation/ extempore/ Written Examination/Internal jury/External Jury

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADARCM75 2	Construction & Materials VII	L	T	P	S	C
Version	2.0	1	0	0	4	5
Category of Course		Major (Studio)				
Total Contact Hours		75				
Pre-Requisites/ Co-Requisites		Construction & Materials V and VI				

Course Perspective

This course is designed to deepen students' understanding of advanced construction systems and their application in contemporary architectural practice. Through a focused study of modern materials, industrialized construction techniques, and sustainable alternatives, students will explore construction not only as a technical process but also as an integrated component of spatial and environmental design. The course aims to develop critical thinking and design-oriented technical knowledge by connecting architectural concepts with real-world construction systems. It encourages students to bridge design with execution through advanced detailing, system coordination, and innovative building strategies.

Course Outcomes

CO1: Understanding the principles, components, and functional requirements of external wall cladding systems used in architectural design.

CO2: Applying knowledge of cladding materials and fixing methods to select appropriate systems for different building types and conditions.

CO3: Analyzing cladding construction details for thermal performance, durability, fire safety, and integration with structural and service elements.

CO4: Creating detailed façade designs incorporating innovative cladding systems, demonstrating integration with the building envelope and architectural intent.

Course Content

Unit I: Advanced Study of Plastics and Polymers in Construction No. of Hours: 15

- Introduction to the use of plastics and rubber as innovative building materials in architecture.
- Study of material properties, chemical composition, and performance characteristics of PVC (Polyvinyl Chloride) and UPVC (Unplasticized PVC) in construction environments.
- Advanced design, fabrication, and installation techniques for PVC and UPVC doors, windows, partitions, and wall panels.
- Analysis of sustainability aspects, fire performance, weather resistance, and lifecycle behavior of polymer-based systems.
- Case studies of commercial and residential buildings using high-performance plastic components for façades, interiors, and service elements.

Unit II: Advanced Building Materials and Systems
20

No. of Hours:

- Introduction to the need for alternate materials in sustainable construction.
- Recycled materials: PET bottles, glass bottles, tyres, plastic waste blocks.
- Industrial by-products: fly ash bricks, slag cement, AAC and CLC blocks.
- Earth-based alternatives: compressed stabilized earth blocks (CSEB), rammed earth.
- Natural and renewable materials: bamboo, coir boards, jute panels, rice husk particle boards.
- Case studies of buildings employing alternate materials for walls, insulation, partitions, and finishes.

Unit III: Advanced Shuttering and Formwork Systems in

Modern Construction

No. of Hours:

20

- Introduction to advanced formwork systems and their relevance in modern construction.
- **Mivan Formwork:** aluminium panels, monolithic casting, components, and site assembly.
- **Tunnel Formwork:** form-casting of walls and slabs in one go for repetitive units.
- **Slip Form and Jump Form Systems:** vertical movement in tall structures like cores, chimneys, and towers.
- **Plastic and Modular Formwork:** lightweight systems for low-rise and mass housing.
- **Table Form (Flying Formwork)** for repeated floor slabs in high-rise construction.
- **Stay-in-place Formwork:** permanent forms that become part of the structure.

Unit IV: External Wall Cladding Systems

No. of Hours:

20

- Introduction to cladding: purpose, types, and performance criteria.
- Study of cladding materials: ACP, HPL, GRC, terracotta, stone, metal, wood, fiber cement.
- Fixing techniques: wet vs dry systems, mechanical anchors, sub-framing.
- Detailed drawings of wall sections and façade assemblies.
- Integration of cladding with insulation, waterproofing, and structural systems.
- Fire safety, durability, and maintenance considerations.
- Case studies of contemporary buildings with innovative façades.
- Practical exercise: design and detail a cladded façade system.

Learning Experience

- Hands-on material exploration through live samples, technical drawings, and component analysis.
- Site visits and virtual walkthroughs of buildings using Mivan, tunnel form, or cladding systems.
- Case study investigations of real-world projects employing prefabrication, modular design, or alternate systems.
- Design exercises focusing on façade detailing, service integration, and prefabricated system-based layouts.
- Workshops or expert interactions with industry professionals, construction technologists, and formwork vendors.
- Studio integration, encouraging students to apply construction systems in their ongoing architectural design projects.

Suggested Readings/ Textbooks

- Prefab Architecture: A Guide to Modular Design and Construction – *Ryan E. Smith* (Wiley)
- Industrialized and Automated Building Systems: A Managerial Approach – *Abraham Warszawski* (Taylor & Francis)
- Pre-stressed Concrete – *N. Krishna Raju* (Tata McGraw-Hill)
- Design of Pre-stressed Concrete Structures – *T.Y. Lin and Ned H. Burns* (Wiley India)
- Formwork for Concrete Structures – *Kumar Neeraj Jha* (Tata McGraw-Hill)
- Concrete Formwork Systems – *Amos Turin and Paul H. Taylor* (Van Nostrand Reinhold)
- Facade Construction Manual – *Thomas Herzog, Roland Krippner, Werner Lang* (Birkhäuser)
- Cladding of Buildings – *Alan Brookes and Maureen Springett* (Taylor & Francis)
- Construction Technology Vol. 1–4 – *Roy Chudley and Roger Greeno* (Pearson Education)
- Building Construction Handbook – *Roy Chudley and Roger Greeno* (Routledge)

Suggested Readings

15. Foster, Stroud (1963) Mitchell's Advanced Building Construction, Allied Publishers Private Limited, Bombay.
16. McKay, W. B. (1972) Building Construction (Metric), Longman, London, vol. 1 to 5.
17. Prabhu, Balagopal T. S. (1987) Building Drawing and Detailing, Spades Publishers Pvt. Ltd., Calicut.
18. Punmia, B. C. (2005) Building Construction, Firewell Media, Delhi.
19. Singh, Gurucharan (1981) Building Construction Engineering, Standard Book House, New Delhi.
20. CPWD. (n.d.). *CPWD Publications*. Retrieved 2020, from Government of India Ministry of Housing & Urban Affairs Central Public Works Department:
https://cpwd.gov.in/Documents/cpwd_publication.aspx

21. CPWD. (n.d.). *DELHI SCHEDULE OF RATES, 2018*. Retrieved 2020, from Government of India, MoHUA, CPWD:
[https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_\(E_and_M\)_2018.pdf](https://cpwd.gov.in/Publication/Delhi_Schedule_of_Rates_(E_and_M)_2018.pdf)
22. McKay, J. (2005). *Building Construction- Volume 4 (4th Edition)*. Orient Longman.
23. McKay, W. B. (2003). *Building Construction - Volume 1 (5th Edition)*. Orient Longman.
24. McKay, W. B. (2006). *Building Construction - Volume 2 (4th Edition)*. Orient Longman.
25. McKay, W. B. (1995). *Building Construction- Volume 3 (5th Edition)*. Orient Longman.
26. R. Chudley, R. G. (2006). *Building Construction Handbook (6th Edition)*. Butterworth-Heinemann.
27. R. Chudley, S. T. (2012). *Advanced Construction Technology (Edition 5, illustrated)*. Pearson.
28. Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 1)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding01>
- Standards, B. o. (n.d.). *National Building Code of India 2016 (Volume 2)*. Retrieved 2020, from Internet Archive: <https://archive.org/details/nationalbuilding02>

Open Educational Resources (OER)

<https://nptel.ac.in/>
<https://swayam.gov.in/>

Evaluation pattern:

Total Maximum Marks: 100				
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

Course Outcome Mapping:

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5

CO1	1	3	2		3	3	2	2	2	2
CO2	3	3			2	2	3	2	1	2
CO3	3	2	2	1	3	2	2	3	3	2
CO4	3	2		3	3	2	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low, 2= strength of co-relation between CO and PSO is Moderate/Medium, 3= strength of co-relation is Strong/High

ADARDS753	Dissertation	L	T	S	P	C
Version	2.0	2	4	0	0	6
Category of Course	Major (Studio)					
Total Contact Hours	20					
Pre-Requisites/ Co-Requisites	Familiarity with using word processing software (e.g., MS Word) and basic computer skills is recommended.					

Course Perspective:

This course allows students to conduct independent research culminating in a dissertation relevant to interior design. Students will identify a research problem, conduct an in-depth literature review, collect and analyze data, and present their findings using professional academic formats. Emphasis is placed on integrating research with design thinking, and on developing skills in documentation, visual communication, and academic integrity.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Formulate a design-research problem based on gaps identified in the literature and professional practice.

CO2: Plan and execute appropriate data collection methods including surveys, interviews, observations, or simulations.

CO3: Analyze, interpret, and synthesize research data to support evidence-based conclusions in interior design.

CO4: Demonstrate academic writing, referencing, and formatting skills in preparing a comprehensive dissertation report.

Course Content:

Unit 1: Research Proposal Development

5 hours

- A-Identifying research area and topic
- B-Literature review and gap identification

- C-Problem statement, objectives, and hypothesis/questions
- D-Methodology selection
- E-Ethics and feasibility

Unit 2: Data Collection

5 hours

- A-Designing tools (questionnaire, observation sheet)
- B-Pilot study and tool refinement
- C-Field work / primary data collection
- D-Use of digital tools (Google Forms, Excel)

Unit 3: Data Analysis

5 hours

- A- Data cleaning and tabulation
- B- Basic analysis: coding, charts, graphs, and descriptive stats
- C-Interpretation and correlation with literature

Unit 4: Writing & Documentation

5 hours

- A- Report structure
- B-Referencing with citation tools
- C-Formatting using MS Word
- D-Visual presentation: Canva / PowerPoint graphics for results

Learning Experience

Inside Classroom

Inside the classroom, students will engage in one-on-one mentorship sessions with faculty to refine their research topics, structure their methodologies, and receive continuous feedback throughout the dissertation process. Workshops will be conducted on academic writing, data analysis tools (such as Excel, SPSS, and Tableau), and citation management using Mendeley or Zotero. Students will participate in peer reviews, research writing clinics, and interim presentations to improve their critical thinking and communication skills. Emphasis will be placed on developing structured reports using MS Word and presenting findings visually through tools like Canva and PowerPoint. Thematic seminars and mock vivas will also be organized to build confidence in presenting and defending research outcomes.

Outside Classroom

Outside the classroom, students will independently conduct literature reviews, field studies, and data collection through surveys, interviews, or observations relevant to their selected topics. They will apply digital tools such as Google Forms for survey distribution and Canva for creating research posters and visual summaries. Students will also engage in drafting and revising their research reports based on mentor feedback, ensuring originality and academic integrity through Turnitin checks. Participation in academic exhibitions, departmental symposiums, and design conferences will be encouraged to promote professional exposure. These experiences aim to foster independent inquiry, practical application of research methods, and effective visual and verbal communication of research findings.

Textbooks

- Kothari, C. R. (2004). *Research Methodology: Methods and Techniques*. New Age International.

Reference Books

- Groat, Linda & Wang, David (2013). *Architectural Research Methods* (2nd Edition). Wiley.

Open Educational Resources (OER)

- <https://open.umn.edu/opentextbooks/textbooks/894>

Course Outcomes (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	2	1	2	1	1	1	3	2	2	2	1	2
CO2	2	2	2	1	2	1	2	2	3	2	1	3
CO3	2	1	2	2	1	1	3	2	2	2	2	2
CO4	1	2	1	3	2	1	2	2	2	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARES701	ESTIMATIONS & SPECIFICATIONS	L	T	S	P	C
Version	2.0	2	1	0	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Understanding basics Implementation in practise					

Course Perspective:

This course is intended to impart students with the necessary technical knowledge for preparation of Specifications and calculating estimates and detailed costing for small to medium scale projects

Course Outcomes:

On completion of the course, the learner will be:

CO1: Understanding the storing and handling of different types of materials.

CO2: Understanding estimates for building components, interior, plumbing, and electrification installations.

CO3: Understanding detailed estimates and schedules of rates.

CO4: Analysing different types of contracts and tender documents for buildings.

Course Content:

Unit 1: Specifications (Materials)

8 hours

- A-Introduction, importance and scope.
- B-Types of specifications, Correct form and sequence of clauses for writing specifications
- C-Study and uses of standard specifications viz; drafted by C.P.W.D.
- D-Writing detailed specifications for various building materials e.g. Bricks, Aggregates (fine & coarse), Cement, Reinforcement, Timber, Glass and Paints.

Unit 2: Specification (Items of works)

7 hours

- A-Writing detailed specifications for various items of work e.g. Earthwork in foundation, Cement concrete,
- B-Reinforcement cement concrete work, Brick work in cement mortar, Damp proof course, Wood works (door & windows),
- C-Glazing, Plastering (cement & sand), Flooring (cement concrete & tiles), Distempering (dry & oil bound), Painting on wood & iron work,
- D-Water proof cement painting, Brick bat coba terracing.

Unit 3: Estimation

6 hours

- Introduction, Importance & scope.

- Types of Estimates – Preliminary, Plinth area, Cubical content, Approximate quantity, Detailed / Item rate method estimates.
- C-Method of Estimation – Separate / individual wall, Centre line methods of estimation.

Unit 4: Rate Analysis

11 hours

- A-Labour out turns and norms of consumption of basic materials
- B-Principles of analysis of rates, Market / DSR rates of labour and materials
- C-Exercises in rate analysis of various items of work mentioned in Module – 2

Unit 5: Accounting Procedures

04 hours

- A-Introduction to P.W.D accounts procedure, measurement book,
- B-daily labour, muster roll, stores, stock, and issue of material from stock,
- C-Indent form, impress account, cash book, and mode of payment

Learning Experience

This unit provides an in-depth understanding of specifications and estimation in construction, crucial for ensuring the quality and accuracy of building projects. Students will start with an exploration of Specifications (Materials), learning about their importance, scope, and the correct forms and sequences for writing them. They will study standard specifications drafted by agencies like the C.P.W.D. and practice writing detailed specifications for various building materials such as bricks, aggregates, cement, reinforcement, timber, glass, and paints.

Textbooks

1. Dutta, B. N. (2003) Estimating and Costing, UBS Publishers
2. Birdie, G. S. Estimating and Costing

Reference Books

1. Kohli, D. D and Kohli, R.C. (2004) A Text Book of Estimating and Costing, S.Chand & Company Ltd.
2. Brook, Martin. (2004) Estimating and Tendering for Construction Work, 3rd edition, Elsevier.
3. Ashworth, A. (1999) Cost studies of buildings, Pearson Higher Education

Open Educational Resources (OER)

1. "Construction Specifications and Standards" by The Open University
2. "Introduction to Estimation and Quantity Surveying" by NPTEL
3. "Building Estimation and Costing" by MIT Open Courseware

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	2	3	2	1	2	1	3	2	2	2	1
CO2	2	3	2	2	2	1	3	3	3	2	2
CO3	2	3	2	2	3	2	3	3	3	3	2
CO4	2	2	3	2	2	2	3	2	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARES701	ESTIMATIONS & SPECIFICATIONS	L	T	S	P	C
Version	2.0	2	1	0	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Understanding basics Implementation in practise					

Course Perspective:

This course is intended to impart students with the necessary technical knowledge for preparation of Specifications and calculating estimates and detailed costing for small to medium scale projects

Course Outcomes:

On completion of the course, the learner will be:

CO1: Understanding the storing and handling of different types of materials.

CO2: Understanding estimates for building components, interior, plumbing, and electrification installations.

CO3: Understanding detailed estimates and schedules of rates.

CO4: Analysing different types of contracts and tender documents for buildings.

Course Content:

Unit 1: Specifications (Materials)

8 hours

- A-Introduction, importance and scope.
- B-Types of specifications, Correct form and sequence of clauses for writing specifications
- C-Study and uses of standard specifications viz; drafted by C.P.W.D.
- D-Writing detailed specifications for various building materials e.g. Bricks, Aggregates (fine & coarse), Cement, Reinforcement, Timber, Glass and Paints.

Unit 2: Specification (Items of works)

7 hours

- A-Writing detailed specifications for various items of work e.g. Earthwork in foundation, Cement concrete,
- B-Reinforcement cement concrete work, Brick work in cement mortar, Damp proof course, Wood works (door & windows),
- C-Glazing, Plastering (cement & sand), Flooring (cement concrete & tiles), Distempering (dry & oil bound), Painting on wood & iron work,
- D-Water proof cement painting, Brick bat coba terracing.

Unit 3: Estimation

6 hours

- Introduction, Importance & scope.

- Types of Estimates – Preliminary, Plinth area, Cubical content, Approximate quantity, Detailed / Item rate method estimates.
- C-Method of Estimation – Separate / individual wall, Centre line methods of estimation.

Unit 4: Rate Analysis

11 hours

- A-Labour out turns and norms of consumption of basic materials
- B-Principles of analysis of rates, Market / DSR rates of labour and materials
- C-Exercises in rate analysis of various items of work mentioned in Module – 2

Unit 5: Accounting Procedures

04 hours

- A-Introduction to P.W.D accounts procedure, measurement book,
- B-daily labour, muster roll, stores, stock, and issue of material from stock,
- C-Indent form, impress account, cash book, and mode of payment

Learning Experience

This unit provides an in-depth understanding of specifications and estimation in construction, crucial for ensuring the quality and accuracy of building projects. Students will start with an exploration of Specifications (Materials), learning about their importance, scope, and the correct forms and sequences for writing them. They will study standard specifications drafted by agencies like the C.P.W.D. and practice writing detailed specifications for various building materials such as bricks, aggregates, cement, reinforcement, timber, glass, and paints.

Textbooks

3. Dutta, B. N. (2003) Estimating and Costing, UBS Publishers
4. Birdie, G. S. Estimating and Costing

Reference Books

4. Kohli, D. D and Kohli, R.C. (2004) A Text Book of Estimating and Costing, S.Chand & Company Ltd.
5. Brook, Martin. (2004) Estimating and Tendering for Construction Work, 3rd edition, Elsevier.
6. Ashworth, A. (1999) Cost studies of buildings, Pearson Higher Education

Open Educational Resources (OER)

4. "Construction Specifications and Standards" by The Open University
5. "Introduction to Estimation and Quantity Surveying" by NPTEL
6. "Building Estimation and Costing" by MIT Open Courseware

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	2	3	2	1	2	1	3	2	2	2	1
CO2	2	3	2	2	2	1	3	3	3	2	2
CO3	2	3	2	2	3	2	3	3	3	3	2
CO4	2	2	3	2	2	2	3	2	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARPD755	PROFESSIONAL DEVELOPMENT	L	T	P	S	C
Version	1.0	0	0	0	2	2
Category of Course	Major					
Total Contact Hours	30 HR					
Pre-Requisites/ Co-Requisites	Professionalism, Communication Skills, Career Readiness					

Course Perspective

This course aims to prepare students for professional practice by enhancing their understanding of industry standards, ethics, and communication skills. It emphasizes portfolio development, resume writing, interview preparation, and client interaction. Through mock interviews, documentation exercises, and mentorship, students gain readiness for internships and future architectural roles.

Course Outcomes

Upon completion of the course the learner will be able to:

- CO1:** Demonstrate an understanding of professional ethics, roles, and responsibilities within architectural practice and allied fields.
- CO2:** Create a professional portfolio that effectively communicates academic and design achievements.
- CO3:** Develop effective written and verbal communication skills for job applications, interviews, and client presentations.

Course Content

UNIT I: Portfolio and Resume Development

8

HR

- Introduction to Resume Writing: Purpose and importance of a resume in professional development. Difference between Resume, CV, and Biodata.
- Offline Resume Preparation: Word-processed resume formats (MS Word, Google Docs), Font, layout, spacing, and readability. Creating a 1-page impactful resume. Resume for internships vs. full-time jobs.
- Digital Resume Formats: Designing resumes using Canva, Adobe InDesign, etc. Creating a portfolio-linked resume (with QR code or hyperlink), PDF formatting and sharing best practices.
- Online Resume Platforms: Resume builders (Zety, NovoResume, Resume.io, etc.), LinkedIn Resume and LinkedIn Profile Optimization, Creating a personal website or digital portfolio (Wix, WordPress, Behance, etc.), Embedding resume in online job portals.

UNIT II. Communication and Soft Skills:

10 HR

- Public speaking and client interaction techniques
- Mock interviews and group discussions
- Teamwork and interdisciplinary collaboration; leadership in professional contexts.
- Exposure to contractual procedures, client-architect roles, and dispute resolution in practice.
- Email and formal writing for professional correspondence.

UNIT III. Architectural Competition Preparation:

12HR

- Introduction to Architectural Competitions: Understanding the purpose and impact of participating in design competitions; types of competitions (student, national, international, thematic, open/closed).
- Team Formation and Roles: Team-building strategies; assigning responsibilities (design lead, researcher, renderer, technical support); importance of collaboration in multi-disciplinary teams.
- Presentation Skills for Competitions: Preparing effective design boards, explanatory diagrams, and written narratives. Visual storytelling, layout principles, and clarity of communication.
- Time and Resource Management: Strategies for managing project timelines, resource allocation, and adapting to constraints under competition deadlines.
- Case Studies: Review of successful competition entries; analysis of award-winning student and professional submissions for insights and best practices.

Learning Experience:

The learning experience for students in the Professional Development course should be dynamic, reflective, and closely aligned with real-world professional expectations.

Inside Classroom:

Students engage in hands-on workshops for portfolio creation, resume building, and presentation skills.

Receive regular critique and feedback from faculty and invited professionals to refine their work and communication.

Outside Classroom

Students visit architectural firms, participate in talks by industry experts, and engage in alumni interaction sessions.

They develop a digital professional identity (e.g., LinkedIn, online portfolios) and build networks with peers and professionals.

Real-time exposure to documentation practices, client meetings, and internship expectations through guided field visits or guest mentorship.

Textbooks : NA

Reference Books/Materials

1. Council of Architecture Website : coa.gov.in

2. Publications of Council of Architecture-Architects (Professional conduct) Regulations; 1989.
3. Architects Act; 1972.

Open Educational Resources (OER)

1. MIT Open Course Ware – The Profession of Architecture <https://ocw.mit.edu>

2. Royal Institute of British Architects (RIBA) - Ethics & Practice

<https://www.architecture.com/knowledge-and-resources/resources-landing-page>

Program Articulation Matrix: Mapping of Course Outcome (COs) with Program Outcomes (POs) and Programme Specific Outcomes (PSOs)

Course Code	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3	PSO4
ADARPD755	CO1	2	2	2	3	1	3	3	2	3	2	2
	CO2	1	3	3	2	2	2	-	3	2	3	2
	CO3	2	3	3	-	3	2	1	3	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Examination separately to secure minimum passing grade).

SEMESTER-VIII

ADARPT851	PRACTICAL TRAINING	L	T	S	P	C
Version	2.0	0	0	0	0	18
Category of Course	Major					
Total Contact Hours	NA					
Pre-Requisites/ Co-Requisites	Understanding of materials and drafting skills/ Observation, drawing skills					

Course Perspective:

This course bridges the theoretical foundations of Architecture with practical industry experience, immersing students in the operational and creative aspects of working within an architect's or interior designer's office. Over 24 weeks (6 months), students gain exposure to a range of design activities, from initial development stages to detailed fabrication drawings and project management. Working closely with experienced professionals, students hone their communication, analytical, and technical skills, and develop a comprehensive portfolio showcasing construction details, materials, and service integration. This hands-on experience cultivates the essential skills and confidence needed to meet the dynamic demands of the interior design profession.

Course Outcomes:

On completion of the course the learner will be:

CO1: Understand and articulate key principles of professional practice by identifying and explaining the roles and responsibilities within an architectural or interior design environment.

CO2: Demonstrate industry techniques and project management skills by engaging in real-world design tasks under the guidance of a seasoned professional, such as planning, scheduling, and executing interior design projects.

CO3: Analyse and evaluate design processes by assessing design techniques, materials, and challenges experienced during training.

CO4: Develop professional and design skills by effectively managing and documenting daily tasks and maintaining a structured approach to meeting project deadlines.

CO5: Produce comprehensive training reports by documenting experiences and insights gained during practical training, including technical drawings, observations, and analyses of design methodologies.

Guidelines for student trainee:

- The aim of the 'Internship' is to enable the students to gain the kind and range of practical experience which will prepare them for their likely responsibilities, immediately after qualifying B.Arch. Course.
- The 'Internship' should be regarded as an important academic activity. Howsoever good the arrangement of training may be, the trainee student, still, has the responsibility to use his own initiative in making the best use of the opportunities which he/she gets during training period and prepare himself/herself for the profession.
- The student should try to seek a variety of experiences in his/her 'Internship office to acquaint himself/herself with various works, procedures etc. of building trade.

1. Criteria for selection of a Training Office

- In case of proprietorship firm, the proprietor shall be an architect; also, the firm shall have at least two or more architects/Interior designer as employee/associates.
- In case of 'Partnership' / 'Pvt. Ltd.' Firms, at least one of the partner/directors shall be an architect/Interior Designer, and the firm shall have at least one or more architects a Partner/director/employee/ associate.
- The said architect (Proprietor/Partner/Director/Head of Department/Chief Architect etc.) shall have at least 5-7 years of working experience and the organization should have a variety of projects.
- The mode of internship should be physical.

2. Working Relationship between Architect and Trainee

- The architect/Designer shall provide enough jobs to the trainee to keep him/her occupied.
- The Architect/Interior Designer shall expose the trainee to different aspects of professional practice. The tasks given to the trainee shall include the following-
 - **Preparation of:**
 - ✓ Sketch designs, presentation drawings etc.
 - ✓ Municipal drawings according to the byelaws.
 - ✓ Workings drawings and details.
 - ✓ Estimates, bill of quantities & specifications.
 - **Discussions with -**
 - ✓ Clients.
 - ✓ Structural Consultants.
 - ✓ Services Consultants.
 - **Inspection and management of site.**
 - **Preparation of**
 - ✓ Models, perspectives and photographs.
 - ✓ Reports, progress charts etc.
 - **Other administrative works.**

3. Honorarium/Stipend

- Architects may, at their discretion, provide an honorarium or stipend as per the industry standard to trainees as a contribution towards meeting out-of-pocket expenses incurred during the internship. The Institute/College shall have no objection should the trainees graciously accept or receive such honorarium or stipend, if offered, in recognition of their training engagement.
- The mode and amount of the honorarium shall depend upon the office and be based upon a mutual agreement between the employing architect/Designer and the trainee. However, it shall neither be a claim of the trainee nor binding on the architect/Designer but in order of professionalism and to maintain the dignity of profession, the training office of architects pay a respectable amount as stipend/honorarium.
- The Institute/Training and Placement cell of the Institute shall not in any way be responsible for the payment against any sorts of damages, whatsoever.

4. Joining and Leaving the Training Office

- Interns are expected to join the training office on the scheduled date and submit their '**Offer Letter**' (*on the official letterhead of the office, duly signed by the Head of Training*) to the Institute in the prescribed format provided in the Logbook.
- Interns must ensure they receive an '**Experience Letter**', duly signed by the Principal Designer, by the end of the internship period.

5. Change of Training Office

- In case of any emergency, an Interns may be permitted to change the training office/place of training once only during the entire period of training. He/she shall inform the faculty '**Internship in-charge**' and seek prior permission for such a change.
- The total duration of the Internship shall be the sum of the period of stay in different offices. It shall be in conformity with the '**Duration of Internship**'.

6. Final Submission

After completion of Internship, the intern is required to submit the following to the parent Institute.

- '**Experience letter successful**' completion of the Internship, from the architect/Designer, in two original copies.
- '**Daily Diary**' with details of the day-to-day work record, which will be returned to the student after assessment and viva voce examination.
- '**Logbook**' in the prescribed format, duly filled up and signed by the 'Supervisor'.
- '**Internship Portfolio**' supplemented with the prints and documents of work done during Internship. The prints and documents shall be obtained with the permission of the Internship office and shall be duly signed by the 'Supervisor'.
- **Portfolio** shall be submitted in two original copies. (*coloured & Black-white copy*) One copy shall be returned to the student after assessment of sessional marks and viva voce examination. The second copy shall be retained by the Training and Placement Cell/library. These shall be presented in **A-3 size (landscape mode)** with ring binding.

Composition Of Jury Panel for Internal Evaluation / Sessional of Internship

- Practical training shall be evaluated internally by a panel, by questioning the candidate. The panel shall consist of at least two senior faculty members (Architect) and Internship Coordinator in addition.
- The **assessment** shall be made from 100 marks.
- An assessment report (confidential) having a weightage of 100 marks out of the whole marks.

Learning Experience

The six-month internship offered an in-depth platform to integrate academic knowledge with extended professional exposure. Working consistently in real-time environments such as architectural firms, design studios, NGOs, or documentation projects, students were able to immerse themselves in the complete project cycle. The long duration provided scope to strengthen domain-specific knowledge in architecture and design while honing essential professional skills including problem-solving, research, teamwork, and communication. Students engaged with project planning, execution, client interactions, and documentation, thereby bridging the gap between theoretical instruction and industry practice. The internship further enhanced their capacity to analyse complex site-specific challenges, adapt to varied contexts, and deliver creative, functional, and socially responsive design solutions.

Outside Classroom

Beyond classroom learning, the six-month internship emphasized immersive experiential exposure to professional environments and community engagement. Students collaborated with industry experts, multidisciplinary teams, and local stakeholders, which enabled them to understand socio-cultural, environmental, and economic dimensions of design. The extended exposure reinforced professional ethics, social responsibility, and cultural sensitivity while building resilience, adaptability, and confidence. By working on live projects over a sustained period, students witnessed the direct application of academic concepts in practice, preparing them for professional roles and establishing a strong, meaningful connection between design education, industry standards, and societal needs.

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal jury	Documentation	External jury	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Recommendation / certification / letters	Presentation/ Detailed Portfolio's / viva	Detailed Logbook

*(It is compulsory for a student to secure 50% marks in Internal and End Term Examination separately to secure minimum passing grade).

Course Outcomes (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	1	1	1	-	3	2	1	-	-	-
CO2	2	3	2	-	1	-	2	3	2	-	-	-
CO3	-	2	3	2	3	1	2	2	3	-	-	-
CO4	2	2	2	3	2	-	2	2	2	-	-	-
CO5	1	2	-	3	-	-	2	2	-	1	-	-

1 indicates the strength of co-relation between CO and PSO is Weak/low, 2= strength of co-relation between CO and PSO is Moderate/Medium, 3= strength of co-relation is Strong/High

Guidelines:

- All projects must be domain specific.
- Students must obtain faculty pre-approval before starting the project.
- Originality and self-driven work will be given higher credit.
- Certification or recommendation from the host organization is mandatory for credit approve.

SEMESTER-IX

ADARAD951	URBAN DESIGN	L	T	S	P	C
Version	2.0	2	0	10	0	12
Category of Course	Major(studio)					
Total Contact Hours	180 hrs					
Pre-Requisites/ Co-Requisites	Practical learning/ Designing, site and drawing coordination					

Course Perspective

This course offers a comprehensive foundation in urban design by exploring its evolution, principles, and relationship with architecture and planning. It begins by contextualizing urban design historically and theoretically, while introducing key spatial elements through texts like *The Image of the City* by Kevin Lynch. Students develop analytical skills by documenting and interpreting urban precincts through multiple layers—morphology, function, ownership, and community dynamics—leading to informed design inferences. The course then transitions into the formulation of structure plans, where students propose design interventions that integrate physical, social, and functional dimensions of urban areas. Emphasis is placed on sustainability and contemporary urban concepts such as transit-oriented development and compact cities. Through iterative presentations, students learn to communicate ideas that are responsive to both contextual realities and future urban aspirations.

Course Outcomes

CO1: Demonstrate an understanding of the key physical, social, and spatial characteristics of urban areas.

CO2: Apply insights from community needs assessments to propose contextually integrated urban interventions.

CO3: Analyse site-specific urban challenges using comprehensive site analysis and stakeholder mapping.

CO4: Evaluate urban issues to formulate a coherent design vision that addresses identified challenges.

CO5: Develop strategic urban design solutions that realize the vision while promoting sustainability, resilience, and enhanced quality of life.

Course Content

Unit I: Introduction to Urban Design

No. of Hours

- Relationship between Architecture, Urban Design and Urban Planning; Brief review of the evolution of urban design as a discipline, basic principles and theories.
- Broad understanding of urban forms and spaces at various spatial scales and analysing different precincts using the elements of urban form from the book, *The Image of the City* by Kevin Lynch.

Unit II: Documentation and Analysis

No. of Hours

- Concepts of public and private realm; understanding different layers of urban precincts: urban morphology, ownership, functions, activities, connections, community feedback

etc. Analysing the layers to arrive at inferences and requirements for urban design interventions.

Unit III: Urban Design Intervention

No. of Hours

- Proposing urban design intervention in terms of a structure plan that co relates the different layers and parts of the precinct. The structure plan gives guidelines for future development of the area.
- Detailed intervention may be shown in terms of a newly introduced function, connectivity or proposal.

Unit IV: Urban Design Presentation

No. of Hours

- Sustainability concept; Relationship of urban design with economic, environmental and social sustainability.
- Urban concepts (like renewal and urban sprawl, concepts of transit-oriented development, compact city, healthy city and walkable city) may be applied.

Design Stages

- Introduction
- Understanding the importance of ‘context’ and built urban environment in design and lessons to be learnt in contextual insertions.
- Study and Analysis
- Examining an existing urban environment for establishing parameters that influence contextual insertion within that fabric.
- Design Proposal
- Design of multi-utility buildings /campus / complexes incorporating the constraints derived from the context it is placed in

Suggested Studio Exercises

- Study of a given urban fabric with underlying context
- Urban Intervention Projects: Design of buildings / building complexes in specific urban contexts such as heritage zones, near existing and within built environments
- Development of projects containing group of buildings with multiplicity of constraints such as relationship of land uses, space, architectural character, circulation, movement landscape and buildings
- The exercises such as redevelopment and urban improvement projects shall be generated after understanding the existing physical, socio-cultural, economic and political context surrounding activities etc

Approach

- Design methodology shall take precedence over design
- Model of existing site and context shall be prerequisite for design insertions

- Part of project may be done in groups to develop teamwork and multi-faceted approach to design

Learning Experience

The Urban Design course offers a rich learning experience both inside and outside the classroom. Inside, students engage in lectures and workshops covering key concepts in urban design, architecture, and landscape architecture. Collaborative group discussions deepen their understanding of the public realm, while hands-on design projects allow for practical application of theoretical knowledge. Guest lectures from industry professionals provide valuable insights into current practices. Outside the classroom, students participate in site visits to analyse urban spaces, engage with local communities to gather input, and collaborate with urban planning agencies to understand relevant guidelines. Additionally, they showcase their design projects in public exhibitions, receiving feedback from peers and professionals.

Reference Books:

1. The Image of the City, Kevin Lynch.
2. Architecture Today
3. Concept to the manifest
4. Projects of various Architects of similar nature

Open Educational Resources (OER)

<https://www.pmi.org/most-influential-projects-2021/top-10-by-industry/urban-development>
<https://www.archdaily.com/tag/urban-renewal>

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1				2	2		3		2		
CO2	2			2	2	1	3	2	2		
CO3	2		2	3	2	1	3	2	3	2	2
CO4	3	2	2	3	3	1	3	2	3	3	2
CO5	3	3	3	2	3	1	3	3	3	3	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Examination separately to secure minimum passing grade).

ADARAT952	Architecture Thesis-I	L	T	S	P	C
Version	1.0	2	3	0	0	5
Category of Course	Major (Studio)					
Total Contact Hours	75					
Pre-Requisites/ Co-Requisites	Completion of all core design studios and Research Methodology					

Course Perspective:

This course initiates the final design thesis process for architecture students, focusing on research, documentation, and conceptual development. It emphasizes selecting a meaningful topic, identifying a suitable site, conducting relevant case studies, and gathering data to support the design narrative. Students will learn to formulate design problems, objectives, and design criteria based on contextual, functional, and user-based requirements. Architecture Thesis–I serves as the foundation for the detailed design development to be undertaken in Thesis–II.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Identify and justify an architectural thesis topic based on relevance, innovation, and research.

CO2: Conduct in-depth case studies and precedent analysis relevant to their project.

CO3: Develop a research-backed design brief with programmatic and functional requirements.

CO4: Formulate initial conceptual and contextual frameworks to guide the design direction.

Course Content:

Unit 1: Topic Selection and Justification

8 hours

- A-Criteria for topic selection.
- B-Interest mapping and problem identification
- C-Relevance to social, cultural, or environmental contexts

Unit 2: Literature Review and Precedent Studies

7 hours

- A-Review of academic and professional literature
- B-Study of architectural theories and past projects
- C-Precedent case studies (similar project types)
- D-Comparative analysis and learning outcomes

Unit 3: Site Selection and Documentation

15 hours

- A-Selection of viable site options.
- B-Site visits and documentation
- C-Site context: physical features, access, zoning, topography
- D-Climatic data, photographs, drawings, and user behavior mapping

Unit 4: Data Collection and Design Brief

15 hours

- A-Surveys and interviews
- B-Legal norms, building bye-laws, environmental concerns
- C-Conceptual diagrams, zoning, and design intent sketches
- D-Preliminary design criteria aligned with the research

Learning Experience

Inside the classroom, students will receive continuous guidance through studio tutorials, desk critiques, presentations, and discussions. They will attend workshops on site documentation, analytical drawing, and report writing. Structured interim reviews will provide direction and feedback. Tools like CAD, Photoshop, InDesign, and GIS software may be used to support data representation and layout preparation.

Outside the classroom, students will independently conduct site visits, document case studies, photograph and measure sites, conduct interviews, and analyze contextual data. They will visit relevant architectural examples (built or under construction) for firsthand experience. Collaboration and peer feedback will be encouraged through study groups and field surveys. They will maintain sketchbooks, photographic journals, and digital logs of research and observations.

Textbooks

2. *Architecture: Form, Space, and Order* – Francis D.K. Ching

Reference Books

1. Relevant IS Codes, NBC guidelines, and local bye-laws
2. *Design Thinking for the Built Environment* – Michael U. Hensel

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	2	1	1	1	3	2	2	2	1
CO2	2	2	2	1	2	1	2	2	3	2	1
CO3	2	1	2	2	1	1	3	2	2	2	2
CO4	1	2	1	3	2	1	2	2	2	2	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment

Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)
-------------	---	---	--------------------------------------	------------------------------

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARBE901	BUILDING ECONOMICS & PROJECT MANAGEMENT	L	T	S	P	C
Version	1.0	2	1	0	0	3
Category of Course	Major (Studio)					
Total Contact Hours	45					
Pre-Requisites/ Co-Requisites	Basic Understanding/ Logical thinking					

Course Perspective:

This course aims to equip students with a comprehensive understanding of the construction industry and the key principles of construction project management.

Course Outcomes:

On completion of the course, the learner will be:

CO1: Understanding the project construction management principles and planning processes.

CO2: Understanding Perform resource allocation, smoothing, levelling, and network updating.

CO3: Applying CPM and PERT techniques for project scheduling and analysis.

CO4: Understand fundamentals of building economics and workflow in real estate projects.

Course Content:

Unit 1: Introduction of Project Management

8 hours

- A-Introduction & definition of Project construction management.
- B-Project functions, planning process.
- C-Project work breakdown, Modelling and analysing networks and work scheduling process

Unit 2: CPM and PERT

7 hours

- A-Bar charts and Mile stone charts. Network analysis fundamentals, CPM Network analysis procedure. PERT - Network, Time estimates, Probability Distribution, Critical Path, Slack and Probability of achieving completion date.
- B-Project Cost Analysis-Cost versus time, Contracting the Network etc.

Unit 3: Resource Allocation

15 hours

- A-Resource Allocation - Resource Smoothing and Resource Levelling.
- B-Updating the network based on the project progress.

Unit 4: Building Economy

15 hours

- A-Introduction to building economics and its role in construction management.
- B-Economic evaluation methods: life cycle cost, cost–benefit analysis, net present value (NPV), internal rate of return (IRR)
- C-Overview of real estate project development process and stakeholders
- D-Workflow in real estate projects: concept to completion
- E-Financial considerations: funding, loans, and risk assessment in building projects

Learning Experience

Inside the Classroom: The course will be conducted through interactive lecture sessions supported by ICT technology. Students will engage in literature-based case studies, participate in group work, and present on specific topics. Industry expert sessions will also be integrated to provide practical insights. This classroom setting is designed to promote active learning and foster a deep understanding of the subject matter.

Outside the Classroom: Experiential learning will be a key aspect, with students encouraged to collaborate, share ideas, and support each other through group discussions and peer reviews. Site visits will offer real-world context and hands-on learning opportunities. Regular feedback and support will be provided throughout, and students are encouraged to seek additional help whenever needed to enhance their understanding and application of the course concepts. This holistic approach aims to foster both individual and collaborative growth.

Textbooks

1. Col. Prof Harbhajan Singh, "Construction Project Management", Abhishek Publications, Chandigarh, 2009
2. Dr B.C Punmia, Building Construction

Reference Books

1. Srinath, L.S., "PERT and CPM - Principles and Applications", Affiliated East - West Press Pvt. Ltd., New Delhi, 1989.
2. Stevens, James. D., "Techniques for Construction Network Scheduling", McGraw - Hill Publishing Company, New York, 1990
3. Mukhopadhyay, S.P., "Project Management for Architects and Civil Engineers", Firma KLM Pvt. Ltd., Calcutta, 1981

Open Educational Resources (OER)

6. <https://nptel.ac.in>
7. <https://swayam.gov.in>

Course Outcome s (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	2	2	2	2	2	2	3	2	2	2	1
CO2	2	3	2	2	2	2	3	3	3	2	2
CO3	3	3	2	2	2	2	3	3	3	3	2
CO4	2	2	2	2	3	2	2	2	2	2	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internals Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

ADARBR953	Building Resilience & Disaster Management	L	T	P	S	C
Version	2.0	0	0	0	2	2
Category of Course		Major(Studio)				
Total Contact Hours		30				
Pre-Requisites/ Co-Requisites		Basics of environmental studies or building science				

Course Perspective:

This course aims to equip architecture students with a foundational understanding of disaster risk, vulnerability, and resilience in the built environment. It emphasizes the integration of disaster management strategies into architectural design and planning, enabling students to approach projects with a risk-sensitive and safety-conscious mindset. Through the study of building codes, structural standards, and community-based approaches to disaster risk reduction (DRR), the course sensitizes future architects to their role in creating safer, more resilient communities. It prepares students to respond proactively to natural and human-induced hazards through thoughtful, context-responsive design solutions.

Course Outcomes (COs):

By the end of the course, students will be able to:

- CO1. Understand the disaster management cycle, key terminologies, and the role of architects in disaster risk reduction and resilience planning.
- CO2. Interpret building codes, safety guidelines, and national standards relevant to disaster-resilient construction and planning.
- CO3. Apply disaster mitigation and preparedness strategies to building design, site planning, and infrastructure systems.
- CO4. Analyze the vulnerability of buildings and settlements by assessing structural and non-structural risks in different hazard contexts.
- CO5. Evaluate real-world case studies, simulation outcomes, and community-based approaches to assess the effectiveness of resilience strategies in architecture and planning.

Course Content:

Unit I: Fundamentals of Disasters and Risk in the Built Environment: 8 hrs

- A. Introduction to Disasters
 - Definition of hazards, disasters, risks, and vulnerabilities

- Classification: Natural (earthquake, flood, cyclone, tsunami, drought, etc.) and man-made (industrial, fire, biological, etc.)
- Direct and indirect impacts on human life, economy, and built environment
- Indian disaster vulnerability profile – historical context and regional distribution
- B. Disaster Management Cycle
 - Stages: Mitigation, Preparedness, Response, and Recovery
 - Role of stakeholders – government agencies, NGOs, professionals
 - Integration of disaster risk reduction (DRR) in planning and design
- C. Hazard Mapping and Risk Assessment
 - Hazard zoning maps (seismic, cyclone, flood-prone areas)
 - Risk assessment methods: GIS-based tools, remote sensing, vulnerability indices
 - Understanding exposure and capacity in architectural context
- D. Vulnerability of Buildings
 - Common structural vulnerabilities – poor construction practices, material failures
 - Non-structural components – furniture, fixtures, facades, partitions, services
 - Role of building form, height, materials, and site context in disaster vulnerability

Unit II: Climate Resilience, Urban Preparedness, and Community Participation: 6 hrs

- A. Climate Resilient and Sustainable Design
 - Passive design techniques for heat, rain, wind – orientation, shading, ventilation
 - Green roofs, bioswales, rainwater harvesting, and other adaptive strategies
 - Net-zero and low-carbon architecture in disaster-prone regions
- B. Urban Resilience in Planning
 - Integration of resilience in urban infrastructure and services
 - Disaster-resilient public spaces and mobility corridors
 - Role of land-use planning, zoning, and building density control
- C. Community-Based Disaster Risk Management (CBDRM)
 - Role of local knowledge, traditional building techniques
 - Community mapping, preparedness programs, mock drills
 - Participatory design and planning for inclusive resilience

Unit III: Designing for Earthquake, Cyclone:

8 hrs

- A. Building Codes, Guidelines, and Frameworks
 - National Building Code (NBC 2016) provisions for disaster resilience
 - NDMA Guidelines: Earthquake, Cyclone, Fire, Urban Flooding
 - International frameworks: Sendai Framework for Disaster Risk Reduction
- B. Earthquake-Resilient Architecture
 - Seismic zoning map of India and implications on design
 - Building configuration: plan symmetry, massing, height-to-width ratio
 - Structural elements and detailing for seismic safety (bracing, shear walls, joints)
 - Key IS Codes: IS 1893, IS 4326 – overview and design implications
 - Case Studies in Post-Disaster Reconstruction: Bhuj Earthquake (2001): housing and infrastructure redevelopment, Nepal Earthquake (2015): retrofitting heritage and vernacular buildings
- C. Cyclone and Wind-Resilient Design
 - Wind forces and their effect on buildings
 - Site orientation and aerodynamics of built form

- Materials and construction techniques for cyclone-prone areas
- Flood-resistant design strategies – plinth height, stilt structures, drainage integration
- Case Studies in Post-Disaster Reconstruction: Kerala Floods (2018): challenges in rebuilding and planning

Unit IV: Fire Safety and Design for Resilience:

8 hrs

A. Fire and Life Safety in Buildings

- Causes of fire hazards in buildings – electrical, kitchen, materials, etc.
- Use of fire-retardant materials, smoke management systems
- Evacuation planning: staircases, corridors, exits, assembly areas
- Fire safety norms as per NBC and local bye-laws

B. Design for Resilience – Studio Component

- Design project: Disaster-resilient housing or community facility
- Integration of passive strategies, safe materials, and evacuation planning
- Presentation of design proposal with site analysis, risk assessment, and resilience features

Learning Experience

Inside: Students will engage in lectures, case studies, and discussions to understand core concepts such as disaster risk, vulnerability, resilience, and risk reduction strategies. They will analyse real-world examples of disaster-affected areas and study the application of building codes, safety standards, and resilient design approaches. Interactive sessions will include building performance assessments, hazard mapping exercises, and design critiques focused on disaster preparedness.

Outside: Students will participate in site visits to disaster-prone or post-disaster rebuilt areas, gaining first-hand exposure to vulnerabilities and mitigation strategies. They may interact with local communities, urban planners, or NGOs involved in resilience planning.

Textbooks

1. Smith, Keith. Environmental Hazards: Assessing Risk and Reducing Disaster– Routledge
2. Lizzie S. & M. Elnashai, *Disaster and Development: An Architect's Role*

Suggested Readings

1. National Building Code (NBC) of India, 2016 – Part 11: Approach to Sustainability
2. IS 1893: Criteria for Earthquake Resistant Design of Structures
3. UNISDR: Sendai Framework for Disaster Risk Reduction
4. NDMA Guidelines (Earthquakes, Floods, Cyclones, etc.)
5. Yamin, F. & Depledge, J., *The International Climate Change Regime*

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	–	2	3	1	3	2	3	2	2	2	–

CO2	2	3	2	—	3	—	2	3	3	3	—
CO3	3	3	2	—	3	2	2	3	3	2	—
CO4	2	3	3	—	2	—	2	2	3	3	—
CO5	2	2	3	2	3	3	3	2	2	3	—
1=lightly mapped				2= moderately mapped				3=strongly mapped			

1 indicates the strength of co-relation between CO and PSO is Weak/low,
2= strength of co-relation between CO and PSO is Moderate/Medium,
3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100				
Component	Major 1	Assignments	Major 2	Review	Attendance
Marks	20	30	20	20	10
Level	Mid Term Internal	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Class Test/ Time Problem/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

*(It is compulsory for a student to secure 50% marks in Internal and End Term Practical Exam and Viva Voce separately to secure minimum passing grade as per COA & University regulations)

SEMESTER-X

ADARAT1051	ARCHITECTURAL THESIS-II	L	T	S	P	C
Version	1.0	2		18	0	20
Category of Course	Major (Theory)					
Total Contact Hours	300					
Pre-Requisites/ Co-Requisites	Completion of All Design Studios till Semester VIII, Urban Design, Professional Practice					

Course Perspective

The Architectural Thesis course aims to help students understand the context and validate the need for their chosen thesis topic or ongoing project. It encourages independent analysis of the design brief, site conditions, bylaws, context, and limitations, enabling students to propose a coherent concept design. The course builds on knowledge acquired in previous semesters, allowing students to apply their understanding of architectural design, construction, and building services. It also sensitizes students to space-specific contextual factors that influence design decisions. Ultimately, the course prepares students to independently develop their projects, presenting all aspects of their architectural design process, from initial evolution to the final solution.

Course Outcomes

Upon completion of the course the learner will be:

CO 1: Understanding the complete design process, including problem identification, requirement formulation, design criteria evolution, and proposal preparation.

CO 2: Applying intensive study and research techniques related to case studies, literature, and design standards.

CO 3: Analysing the incorporation of building services within the design project.

CO 4: Evaluating the context of design, including place, people, and time, and its impact on design solutions.

CO 5: Creating effective presentation skills, both verbal and visual, to demonstrate projects using software and 3D modelling techniques.

Course Content

For reasons of maintenance of uniformity in results and standards, the thesis presentation shall be in two distinct compartments: a report comprising of all the preliminary studies required for the thesis topic, and the final design solution. The Thesis report shall consist of all relevant contextual studies: of user, place and time to enable the formulation of design criteria. The design solution shall be in the form of sheets and models of the concept and

design and shall further include the presentation of at least one specific aspect relevant to the selected topic in complete detail. The report, in triplicate, shall be submitted in bound form together with prints/photographs of all the drawings and models.

Learning Experience

The course provides a rich learning experience through both inside and outside activities. Students engage in lectures and workshops focused on design theory, research methodologies, and project development, complemented by group discussions that encourage problem-solving. Individual consultations with instructors and guides offer personalized guidance throughout the thesis process. Outside the classroom, field studies and site visits allow for real-world analysis and valuable insights, while community engagement enriches their understanding of user needs. Public presentations enable students to showcase their projects and receive constructive feedback. This comprehensive approach enhances their creative and analytical skills, fostering a deep understanding of the interplay between theory and practice, ultimately preparing them to make impactful contributions to the field of architecture.

CO \ PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2		3	2	2		3		2		
CO2	2	2			2		2	3	3	2	
CO3	2	3	2	2	2	1	2	3	3	3	2
CO4	3	2	2	2	2		3	2	3	3	1
CO5	3	3	3	3	3	1	3	3	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Major 1	Major 2	External Jury	Attendance
Marks	20	20	50	10
Level	Mid Term Internal	End Term Internal	End Term External	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Presentation/ Project/ visit report/ case study/ model/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ANNEXURE 1

**POOL OF
DISCIPLINE ELECTIVES
FOR
B.ARCH (2025-30)**

POOL OF ELECTIVES								
B.ARCH (2025-30)								
S.No.	Course Code	Course Title	L	T	S	P	C	Assessment
Elective- I (Semester V)								
1	ADDEBI555	BIM & GIS	1	0	1	0	2	Internal
2	ADDEGI555	Construction & Demolition Waste Management	1	0	1	0	2	Internal
3	ADDECD555	GIS (Geographic Information System)	1	0	1	0	2	Internal
Elective- II (Semester VI)								
1	ADDEDC657	2D Design Communication	1	0	1	0	2	Internal
2	ADDEVI657	Visual Interpretation	1	0	1	0	2	Internal
3	ADDEAP657	Architectural Photography	1	0	1	0	2	Internal
4	ADDEAI657	AI for Designers	1	0	1	0	2	Internal
5	ADDEVS657	Vastu Shastra	1	0	1	0	2	Internal
Elective- III (Semester IX)								
1	ADDEDM954	Digital 3D Modeling	1	0	1	0	2	Internal
2	ADDESD954	Surface Design	1	0	1	0	2	Internal
3	ADDEDW954	Design Writing	1	0	1	0	2	Internal
4	ADDEUI954	Interactive Media and UI Design	1	0	1	0	2	Internal
5	ADDEAC954	Architectural Conservation	1	0	1	0	2	Internal
Elective- IV (Semester X)								
1	ADDEDV1052	Digital Video and Motion Design	1	0	1	0	2	Internal
2	ADDEDS1052	Design Styling	1	0	1	0	2	Internal
3	ADDESM1052	Social Media Storytelling	1	0	1	0	2	Internal
4	ADDEDR1052	Designing Realities: AR, VR	1	0	1	0	2	Internal
5	ADDEPM1052	Parametric Modeling	1	0	1	0	2	Internal

Elective- I
(Semester V)

Course Code ADDEBI555	Course Title Building Information Modeling	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Basic knowledge of architectural drafting and design principles					

Course Perspective:

This course introduces architecture students to Building Information Modeling (BIM) as an intelligent digital representation process that facilitates integrated design, visualization, documentation, and collaboration. Students will gain both theoretical and hands-on understanding of BIM, using industry-standard software, to enhance design accuracy, interdisciplinary coordination, and lifecycle management of buildings.

Course Outcomes (COs):

At the end of the semester the student is able to:

CO1: Recall fundamental BIM terminology, components, and dimensional frameworks (3D to 7D).

CO2: Describe the differences between BIM and traditional CAD processes and explain BIM workflows.

CO3: Apply BIM software tools (e.g., Revit) to develop architectural models with key building elements.

CO4: Analyse BIM models for data extraction, drawing generation, clash detection, and model coordination.

CO5: Design and create a basic coordinated BIM project integrating architecture with structural systems.

Course Content:

Unit 1: Foundations of BIM (*Hours: 7*)

- Introduction to BIM: concept, evolution, and terminology
- Differences between BIM and traditional CAD workflows
- BIM dimensions: 3D to 7D (design, time, cost, sustainability, facilities)
- Key standards and protocols: ISO 19650, IFC formats
- Introduction to BIM applications across the project lifecycle

Unit 2: BIM Tools and Modeling Basics (*Hours: 7*)

- Introduction to BIM software (Revit/ArchiCAD)

- Interface, project setup: levels, grids, families, views
- Modeling architectural elements: walls, floors, doors, windows, stairs, roofs
- Use of parametric elements and families
- Templates and file organization

Unit 3: Documentation and Analysis (*Hours: 8*)

- Generating views: plans, elevations, sections, 3D
- Annotation tools, dimensions, legends, and callouts
- Creating schedules: quantity take-offs (doors, windows, rooms)
- Sheets, layouts, title blocks, print/export
- Clash detection basics and model checking tools

Unit 4: Integration, Collaboration, and Project Creation (*Hours: 8*)

- Model coordination: linking files, collaboration tools, work sets
- Interdisciplinary coordination (architecture, structure, MEP)
- Capstone project: Create a small-scale BIM model integrating multiple systems
- BIM for sustainable design and lifecycle use
- Case studies from real-world architecture firms

Tools & Materials Required:

- Autodesk Revit (student version, free); optional tools include ArchiCAD or Navisworks for extended functions.
- Personal laptop/PC with minimum 8 GB RAM (16 GB recommended), dedicated GPU, and SSD storage.
- Sketchbook for planning, cloud storage (Google Drive/OneDrive), and access to online BIM tutorials or learning portals.

Learning Experience

Inside: The course offers a balanced mix of conceptual understanding and hands-on practice to ensure holistic learning. In the classroom, students will engage with interactive lectures, live software demonstrations, and guided lab sessions that progressively build proficiency in BIM tools and workflows. Case studies and real-world examples will be used to contextualize BIM applications in architectural practice.

Outside: students will independently work on assignments and Modeling tasks that reinforce classroom learning. They will explore online tutorials, participate in self-paced exercises, and, where feasible, attend guest lectures or webinars by BIM professionals from the industry. The course culminates in a capstone project where students will collaboratively design and present a coordinated BIM model that integrates architectural and structural systems. This blend of theoretical and experiential learning will prepare students to effectively apply BIM in studio projects and future professional practice.

Textbooks

1. Eastman, C., Teicholz, P., Sacks, R., & Liston, K. (2011). BIM Handbook. Wiley.

2. Krygiel, E., & Nies, B. (2008). *Green BIM: Successful Sustainable Design with BIM*. Wiley.

References

1. Hardin, B., & McCool, D. (2015). *BIM and Construction Management*. Wiley.
2. Hergunsel, M. (2011). *Benefits of Building Information Modeling for Construction Managers and BIM Based Scheduling*.

Suggested Readings

1. Autodesk Learn BIM Online
2. Graphisoft Learn
3. The BIM Hub
4. National BIM Standard – US

Evaluation Scheme

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

CO-PO Mapping

Programme and Course Mapping												
CO	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	2	–	–	1	–		3	2	1	–	–
CO2	2	2	1	2	1	–		3	2	2	1	–
CO3	3	3	–	2	2	–		2	3	2	2	2
CO4	2	3	1	3	2	–		2	2	3	3	2
CO5	3	3	1	2	3	2		2	2	–	–	–
1=lightly mapped				2= moderately mapped				3=strongly mapped				

Course Code ADDECD555	Course Title Construction & Demolition Waste Management	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	3					
Pre-Requisites/ Co-Requisites	Basics of construction					

Course Perspective:

With rapid urbanization and infrastructure development, construction and demolition (C&D) waste has emerged as a critical environmental and planning concern. This course equips architecture students with a deep understanding of the sources, classification, impacts, regulations, and sustainable strategies for managing C&D waste. The course emphasizes integrated approaches to reduce, reuse, recycle, and responsibly dispose of materials through planning, design, and execution phases of buildings.

Course Outcomes (COs):

At the end of the semester the student is able to:

CO1: Recall the types, sources, and characteristics of construction and demolition waste.

CO2: Explain the environmental, economic, and health impacts of poor C&D waste management.

CO3: Apply sustainable design strategies to minimize C&D waste during the lifecycle of a project.

CO4: Analyze waste audit data and management practices in real-world construction sites.

CO5: Design a waste management plan integrating regulatory compliance, on-site logistics, and reuse.

Course Content:

Unit 1: Introduction to Construction and Demolition Waste (*Hours: 7*)

- Definition, scope, and relevance of C&D waste
- Classification: construction, renovation, and demolition phases
- Sources of waste in various building materials
- Composition and volume trends in India and globally
- Overview of Solid Waste Management Rules, 2016 (C&D-specific provisions)

Unit 2: Impacts and Challenges of C&D Waste (*Hours: 7*)

- Environmental impacts: pollution, land degradation, water and air quality
- Economic and operational costs of unmanaged waste
- Health hazards for workers and communities

- Informal sector involvement in waste collection
- Challenges in segregation, transport, and recycling

Unit 3: Strategies for Sustainable Waste Reduction (*Hours: 8*)

- Design-phase interventions: modularity, material efficiency, adaptive reuse
- Construction-phase practices: lean construction, site management
- Demolition-phase planning: deconstruction vs demolition
- 3Rs strategy: Reduce, Reuse, Recycle
- Case studies of green buildings with C&D waste minimization

Unit 4: Policy, Compliance, and Waste Management Planning (*Hours: 8*)

- National and local policies (CPWD, MOEFCC, ULB guidelines)
- Construction Waste Management Plan (CWMP) – elements and templates
- Technologies and tools for waste tracking and logistics
- Planning on-site storage, transportation, and recycling logistics
- Preparation of a site-specific waste management plan (Student Project)

Tools & Materials Required:

- Field and Documentation Tools: Waste audit sheets, measuring tape, smartphone/camera for site documentation, PPE (helmet, mask, shoes), and notebooks/sketchbooks for recording observations.
- Digital and Reference Materials: Spreadsheet software (Excel/Google Sheets), access to AutoCAD or sketching tools, government guidelines (e.g., SWM & C&D Rules 2016), and presentation tools for project work.

Learning Experience

Inside: Students will participate in interactive lectures, case study analyses, and discussions on best practices in construction and demolition waste management. Guest lectures by industry professionals and environmental consultants will provide real-world insights into policy implementation, material reuse, and on-site practices.

Outside: Students will engage in field visits to construction or demolition sites to observe current waste management practices, conduct basic waste audits, and interact with site personnel. Independent assignments will encourage students to document, analyze, and propose improvements to existing systems. As a culminating activity, students will prepare a site-specific waste management plan for a real or hypothetical project, applying the principles and strategies learned throughout the course.

Textbooks

1. TIFAC (2015). Utilization of Waste from Construction Industry. Department of Science and Technology, Govt. of India.
2. Pichtel, J. (2014). Waste Management Practices: Municipal, Hazardous, and Industrial. CRC Press.

References

1. CPWD (2019). *Guidelines on Environmental Management of Construction & Demolition (C&D) Waste*.
2. BIS Code: IS 383 – *Specification for Coarse and Fine Aggregates from Natural Sources for Concrete*.
3. Ghosh, S. (2021). *Construction and Demolition Waste Management in India*. Springer.

Suggested Readings

5. Ministry of Environment, Forest and Climate Change (MOEFCC) – <https://moef.gov.in>
6. Construction and Demolition Waste Rules, 2016 – CPCB Guidelines
7. NITI Aayog & GIZ Reports on Circular Economy in Construction Sector
8. Smart Cities Mission: Sustainability and Waste Management Practices
9. Online platforms like *IGBC*, *CII-Green Business Centre*, and *TERI*

Evaluation Scheme

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	1	2	2	–	2	–	3	2	–	–	–
CO2	1	1	3	1	3	2	3	2	1	–	–
CO3	2	2	2	–	3	2	2	3	2	2	2
CO4	1	3	2	2	2	–	2	2	3	3	–
CO5	2	3	3	2	3	3	2	3	3	3	3
1=lightly mapped				2= moderately mapped				3=strongly mapped			

ADDEGI555	Geographic Information System (GIS)	L	T	S	P	C
Version	1.0	0	0	2	0	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Computer Literacy/ Technical Drawing or CAD/ Remote Sensing/ Data Visualization / Design Communication /Surveying & Levelling / Site Analysis					

Course Perspective: This course equips students with practical knowledge and skills in Geographic Information Systems (GIS) for spatial analysis and mapping in urban, regional, and rural contexts. It emphasizes hands-on experience in digitizing base maps, integrating spatial and attribute data, and generating thematic maps using GIS software. Students will explore terrain analysis through digital elevation models (DEMs) and evaluate environmental parameters such as land cover and vegetation indices using satellite imagery. The course prepares learners to apply GIS as a decision-support tool in planning, environmental analysis, and design practices.

Course Outcomes:

On completion of the course the learner will be:

CO1: Apply GIS techniques to digitize and display base maps for cities, regions, or villages.

CO2: Create thematic maps by integrating spatial and attribute data using GIS software.

CO3: Analyze slope, elevation, and hydrology using DEM files and GIS tools.

CO4: Evaluate land cover and vegetation indices (NDVI, NDBI) from satellite imagery using GIS extensions.

Course Content:

Unit 1: Introduction to GIS S

oftware

No. of Hours: 6

- A- Introduction to GIS Software and exploring Graphical User Interface (GUI).
- B- Identifying toolbars and available tools and Geo-referencing: Concept and process.
- C- Introduction to toposheets and satellite images.
- D- Creating a project in GIS software and creating and managing layers.
- E- Digitization methods: Importing and exporting data.

Unit 2: Displaying and Presenting GIS Data

No. of Hours: 8

- A- Understanding map elements: Adding and changing symbology.
- B- Labelling and annotations.
- C- Creating map layouts and Inserting map scale, legend, title, north symbol.
- D- Creating grids, saving and exporting map layouts.
- E- Printing and exporting maps as images.

Unit 3: Data Analysis Techniques – I

No. of Hours: 8

- A- Introduction to data analysis tools and techniques in GIS
- B- Spatial and attribute data analysis, adding databases to attribute tables and merging information from external sources
- C- Thematic mapping using census and statistical data
- D- Creating charts and graphs
- E- Statistical summaries and basic calculations- Calculating geometry
- F- Buffering and proximity analysis and Overlay analysis
- G- Satellite imagery types, Mosaic and clip tools

Unit 4: Advanced Spatial Analysis Techniques – II

No. of Hours: 8

- A- Digital Elevation Models (DEM): Elevation, slope, and hydrology analysis
- B- Extensions for spatial analysis
- C- 3D analysis and TIN modelling
- D- Land suitability and impact analysis
- E- Index-based analysis:
 - NDVI (Normalized Difference Vegetation Index)
 - NDBI (Normalized Difference Built-up Index)
 - NDWI (Normalized Difference Water Index)
- Land cover classification and analysis.

Learning Experience:

The GIS course offers hands-on experience in spatial data handling, map creation, and geospatial analysis using industry-relevant software. Students learn to integrate real-world data with thematic layers for visualization and decision-making. Field-based and project-oriented learning enhances critical thinking and technical skills in urban, regional, and environmental contexts.

Inside Classroom:

Hands-on training with GIS software (e.g., QGIS, ArcGIS) for map creation, data entry, and spatial analysis.

Lectures and demonstrations on GIS concepts, tools, and methodologies.

Lab-based exercises for digitization, geo-referencing, and thematic mapping using sample datasets.

Outside Classroom:

Field visits to collect spatial data using GPS or mobile GIS tools (e.g., mapping land use, utilities, vegetation, etc.).

Interaction with local planning authorities or environmental agencies to understand real-world applications of GIS.

Mini-projects or case studies using real data from municipal bodies, census, or satellite imagery sources.

Textbook: NA

Reference Books:

1. Fundamentals of geographic information system by Michael N. Demers, Wiley.
2. getting to know arcview GIS by ESRI, ESRI
3. Geographic Information System by Jatin Pandey, Teri Press
4. Geographic Information Systems Socioeconomic Applications by David Martin, Routledge

Open Educational Resources (OER) –

1. https://docs.qgis.org/latest/en/docs/training_manual/
2. Esri Academy (Free Courses Section)-
<https://www.esri.com/training/catalog/search/?q=free>
3. NASA ARSET – Applied Remote Sensing Training-
<https://appliedsciences.nasa.gov/what-we-do/capacity-building/arset>
4. QGIS Tutorials and Tips: <https://www.youtube.com/c/KlasKarlssonQGIS>
5. GeoDelta Labs (GIS Concepts and Tools):
<https://www.youtube.com/c/GeoDeltaLabs>

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Program Articulation Matrix: Mapping of Course Outcome (COs) with Program Outcomes (POs) and Programme Specific Outcomes (PSOs)

Programme and Course Mapping												
CO	PO1	PO2	PO3	PO4	PO5	PO6		PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	—	2	2	—		3	3	2	—	—
CO2	3	3	—	3	2	—		3	3	2	—	—
CO3	2	3	—	2	3	—		2	3	3	2	—
CO4	2	2	1	2	3	—		3	2	3	3	—
CO5	2	3	3	2	3	3		2	3	3	3	3
1=lightly mapped			2= moderately mapped					3=strongly mapped				

Elective- II
(Semester VI)

Course Code	Course Title	L	T	P	S	C
ADDEDC657	2D Design Communication					
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	visual design fundamentals					

Course Perspective:

This course explores the foundational and digital aspects of 2D visual representation. Emphasis is placed on printmaking processes, visual storytelling, and digital rendering tools to create expressive and communicative visuals in design.

Course Outcomes (COs):

CO1. Identify and recall the fundamental elements of 2D visual language, manual techniques, and digital tools relevant to design visualization.

CO2. Apply foundational skills in sketching, printmaking, and digital illustration to develop design compositions and surface visuals.

CO3. Analyze visual elements, color schemes, typography, and layout to construct effective storyboards, branding components, and design narratives.

CO4. Evaluate and create expressive visual outputs by integrating manual print techniques and digital tools for storytelling, branding, and pattern development across design domains.

Course Content:

Unit 1: Visual Exploration & Manual Techniques

Hrs: 7

- Fundamentals of mark-making, texture, and form
 - Introduction to hand-drawn ideation and sketch journaling
 - Basics of stencils, layering, and mixed media
 - Visual abstraction and motif development
- Activity: Create a visual composition using manual drawing, collage, and mixed media

Unit 2: Introduction to Printmaking & Surface Techniques

Hrs: 7

- Basics of printmaking: monoprint, lino-cut, block printing
- Layering, registration, and repetition techniques

- Texture transfer and surface enhancement
 - Combining hand prints with digital overlays
- Activity: Develop a 2D print-based pattern or art panel and digitize it for further enhancement

Unit 3: Digital Illustration, Pattern & Storyboarding

Hrs: 8

- Introduction to Photoshop, Illustrator, Krita, Procreate
 - Digital sketching, color blocking, and layer management
 - Creating concept art, repeat patterns, and surface visuals
 - Storyboarding for spatial, fashion, or UX narratives
- Activity: Create a short storyboard (6–8 frames) or a digitally repeated pattern derived from print work

Unit 4: Typography, Layout & Visual Branding

Hrs: 8

- Basics of typography: font types, hierarchy, pairing
 - Layout principles for print and screen
 - Logo development and visual identity design
 - Application to posters, portfolios, packaging
- Activity: Design a mini branding kit with logo, color scheme, and two promotional visuals

Tools & Materials Required:

- Drawing/sketching materials, linoleum blocks, printmaking inks
- Access to Photoshop, Illustrator, Procreate, or Krita
- Scanning/photographing tools for digitizing hand work

Learning Experience

Inside: Students engage in instructor-led demonstrations of traditional printmaking techniques such as monoprinting and linocut, as well as guided tutorials on digital tools like Adobe Photoshop, Illustrator, Procreate, and Krita. Studio sessions focus on developing foundational skills in sketching, rendering, and layout design, while theory lectures introduce key concepts such as composition, color theory, typography, and visual hierarchy. Regular peer reviews and critique sessions encourage analytical thinking and collaborative learning, allowing students to reflect on their own work and that of others. Group projects further simulate professional design environments and foster teamwork across disciplines.

Outside: Learning continues through experiential activities such as field visits to printmaking studios or craft clusters, where students observe real-world applications of surface and pattern techniques. Visits to art galleries or design exhibitions provide exposure to diverse visual languages and historical contexts. Each student maintains a visual journal or design diary to document their weekly progress, creative experiments, and reflections. They are also encouraged to complete self-paced software tutorials and share their work through digital platforms such as Instagram, Behance, or class blogs. Activities like material scavenger hunts and mixed-media explorations help students develop observational skills and connect inspiration from their surroundings to their studio projects. Together, these experiences ensure a comprehensive and practice-oriented learning journey, bridging manual techniques with contemporary digital visualization.

Textbooks

1. Printmaking: A Complete Guide to Materials & Processes by Grabowski & Fick
2. Graphic Design: The New Basics by Ellen Lupton
3. Digital Painting Techniques by 3DTotal Publishing

Suggested Readings

1. Online tutorials (Adobe, Behance, YouTube Masterclasses)

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5

CO1	2	1	2	2	1	2		3	2	2	2	—
CO2	2	2	—	2	—	1		2	3	—	—	2
CO3	3	2	1	2	1	-		2	3	2	2	2
CO4	3	2	2	3	1	2		2	3	2	2	3
CO5	2	1	1	3	—	2		2	2	3	3	2
1=lightly mapped				2= moderately mapped				3=strongly mapped				

Course Code	Course Title	L	T	P	S	C
ADDEVI657	Visual Interpretation					
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	A conceptual bent of mind, exposure to everyday visual culture, and basic digital literacy for reference or collage work are also recommended.					

Course Perspective:

This course offers an immersive exploration of visual culture through observational and interpretive painting practices. Students will learn to translate everyday experiences, media imagery, and cultural symbols into meaningful visual narratives. Emphasis is placed on personal engagement, critical thinking, and creative expression. Through hands-on projects and reflective critique, learners will develop a deeper understanding of how art communicates identity, memory, and social commentary.

Course Outcomes (COs):

CO1: Understand and interpret the role of visual culture in everyday life, media, and socio-cultural contexts.

CO2: Observe and document real-world spaces, objects, and symbols through artistic practices like drawing and painting.

CO3: Apply painting techniques to reimagine media imagery and cultural references with conceptual depth.

CO4: Create expressive artworks that explore memory, identity, spatial experience, and symbolism.

CO5: Evaluate visual artworks through presentations and critiques, demonstrating critical thinking and visual literacy.

Course Content:

Unit 1: Observing the Visual World — From Life to Canvas Hours: 8

A. Sketching the Everyday – Rapid freehand drawing/painting of people, objects, or moments from public life (markets, cafés, bus stops).

B. Object as Narrative – Paint a composition based on a commonly used household or cultural object, focusing on symbolism.

Unit 2: Reimagining Visual Media and Digital Culture

Hours: 8

- A. Poster Re-imagining – Select a vintage/modern ad poster or film still and reinterpret it as a contemporary painting (commentary-based).
- B. Memetic Imagery in Contemporary Visual Expression – Translate a meme or digital icon into a painted narrative artwork.
- C. Critical Reflection Task – Short write-up (300–400 words) explaining the reinterpretation and commentary angle used.

Unit 3: Mixed Media & Visual Critique of Society

Hours: 7

- A. Collage to Canvas – Use collage (print media/digital media) to create a mixed-media visual work that critiques consumerism, identity, or stereotypes.
- B. Thematic Composition – Combine drawing, collage, and typography to build a unified message on a chosen contemporary issue.

Unit 4: Space, Memory, and Cultural Symbolism in Art

Hours: 7

- A. Memory Mapping – Create a painting/illustration that represents a memory of a cultural/ritual space (temple, kitchen, market, ancestral home).
- B. Site-Specific Study – Visit a monument or culturally significant location and translate the spatial experience into a narrative painting.
- C. Symbolic Composition – Paint using symbolic motifs from Indian folk art, rituals, or urban culture to express a socio-political idea.

Learning Experience

Inside: Guided drawing sessions in class using live models, props, and recorded public scenes.

Outside: Visit to a local market, bus stop, temple street, or café for live sketching practice. Students maintain a "Visual Culture Diary" throughout the week, sketching 1–2 pages daily from life.

Textbooks

1. "Practices of Looking: An Introduction to Visual Culture" Marita Sturken & Lisa Cartwright
2. "Ways of Seeing" John Berger
3. "Visual Culture: The Reader" Edited by Jessica Evans & Stuart Hall
4. "Art and Visual Perception: A Psychology of the Creative Eye" Rudolf Arnheim

5. "Contemporary Indian Art: Other Realities" Yashodhara Dalmia

Evaluation pattern II: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	—	1	—	—	3	2	—	—	—
CO2	3	3	—	2	—	—	2	3	2	—	—
CO3	2	2	1	3	1	1	2	2	3	2	2
CO4	3	3	1	3	1	2	3	2	3	3	—
CO5	2	3	3	2	3	3	2	3	2	3	3
1=lightly mapped				2= moderately mapped				3=strongly mapped			

Course Code ADDEAP657	Course Title Architectural Photography	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites						

Course Perspective:

This course provides a comprehensive foundation in photography, guiding students from basic camera operation to advanced shooting techniques, post-processing, and developing a personal style.

Course Outcomes (COs):

CO1. Understand and apply fundamental concepts of light, composition, and camera focus to create visually compelling photographs.

CO2. Experiment with artificial lighting and studio setups to produce dramatic portraits and still life compositions for product and food photography.

CO3. Plan and execute nature and landscape photography projects by adapting to environmental conditions and using compositional strategies.

CO4. Practice ethical and creative field photography by documenting subjects in zoological parks, heritage sites, or rural communities.

Course Content:

Unit 1: Photography Fundamentals: Light, Composition & Focus *No. of Hours: 10*

- Understand the **importance of light** in photography — it shapes mood, detail, and exposure.
- Key parts: lens, sensor, viewfinder
- Balance, symmetry, patterns, and perspective

Unit 2: Artificial & Studio Lighting Basics *No. of Hours: 10*

- Dramatic shadows and high contrast portraits.
- Still life composition, product & food photography basics with artificial lights.
- Studio setup & lighting basics.

Unit 3: Nature & Landscape Photography *No. of Hours: 10*

- Framing & composition in nature.
- Working with weather & natural elements.
- Wildlife basics & ethical practices by visiting zoological parks or wildlife sanctuary,
Visits Heritage site or historical building, rural village or farming community

Learning Experience

Inside: Students will gain hands-on experience working with professional cameras, studio lighting, and backdrops, learning how to control every aspect of a shot — from exposure to composition. Through indoor sessions, they'll experiment with portraits, product setups, and styled vintage shoots, discovering how to shape mood and emotion using artificial light, props, and creative concepts. This controlled environment builds technical confidence and sparks imaginative storytelling in a safe, collaborative space.

Outside: Stepping beyond the classroom, students immerse themselves in real-world environments — bustling streets, historic sites, natural landscapes, and candid community moments. Here, they'll learn to adapt to changing light, unpredictable scenes, and spontaneous storytelling. By documenting people, places, and authentic moments, they develop an eye for detail, respect for diverse subjects, and the practical skills to narrate powerful visual stories that connect audiences with the world around them.

Textbooks

1. The Beginner's Photography Guide by DK
2. The fundamentals of creative Photography by David Prakerl
3. National Geographic: The Photographs by Leah Bendavid-Val
4. Understanding street photography by Bryan Peterson
5. Understanding portrait photography by Brayan Peterson.

Suggested Readings

1. Online tutorials.

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5

CO1	3	3	–	2	–	–	3	3	2	–	2
CO2	3	3	–	2	–	–	2	3	2	–	3
CO3	3	2	1	2	2	1	2	3	2	2	2
CO4	2	2	3	3	2	1	2	2	3	3	2
1=lightly mapped			2= moderately mapped			3=strongly mapped					

ADDEAI657	AI for designers	L	T	S	P	C
Version	1.0	1	0	1	0	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Visual communication tools, Digital literacy, Emerging technologies					

Course Perspective:

This course introduces learners to the fundamentals of Artificial Intelligence and its application in creative design practices across disciplines. It aims to demystify AI as a tool for ideation, visualization, and storytelling while fostering critical thinking about its ethical and societal impacts. The course combines theoretical insights with hands-on exercises to help students integrate AI tools effectively into their design workflows, preparing them for future trends in the creative industries.

Course Outcomes:

On completion of the course the learner will be:

CO1: Understand fundamental concepts of Artificial Intelligence and Generative Design in the context of creative industries.

CO2: Apply AI tools (e.g., DALL·E, MidJourney, ChatGPT) to generate images, mood boards, and creative briefs.

CO3: Analyze ethical, societal, and professional implications of AI-assisted creative workflows.

CO4: Create storytelling visuals and narratives by integrating AI-generated content into traditional design processes.

Course Content:

Unit 1: Fundamentals of Artificial Intelligence & Generative Design. No. of Hours: 7

- Fundamentals of Artificial Intelligence, Overview of Generative Design in creative fields, History and evolution of AI in creative industries, Contemporary case studies of AI-driven projects across disciplines.

Unit 2: Getting Started with AI Tools for Creativity

No. of Hours: 7

- Introduction to AI image generators (MidJourney, DALL·E), Basics of text generation with ChatGPT or Gemini, Simple prompt engineering techniques.

Unit 3: Ethical Concerns in AI-Generated Content

No. of Hours: 8

- Authorship and originality in AI art/design, Copyright, intellectual property, and plagiarism concerns, Bias in AI datasets and impact on inclusivity, Environmental sustainability and AI

Unit 4: Applying AI in Design Projects

No. of Hours: 8

- Using AI for mood boards, storyboarding, and layout suggestions, Integrating AI outputs into traditional design tools (e.g., Canva, Photoshop).

Learning Experience:

Students will experience a blend of interactive lectures, tool demonstrations, and studio-based workshops that emphasize experimentation and collaboration. Through real-world case studies and guided practice, they will learn to balance human creativity with AI assistance. Reflection sessions and peer discussions will deepen their understanding of AI's role and implications in the evolving landscape of creative work.

Inside Classroom:

- Interactive lectures and discussions on AI concepts and creative applications.
- Live demonstrations of AI tools like MidJourney, DALL·E, and ChatGPT.
- Hands-on workshops where students practice prompt writing and generate visuals/texts.
- Group brainstorming and critique sessions to develop collaborative AI-assisted projects.

Outside Classroom:

- Individual assignments using AI tools to create mood boards or short visual stories.
- Reflective journals on their experiences and insights about AI in design.
- Online peer feedback through shared design outputs on platforms like Miro or Canva.
- Mini-research tasks exploring emerging trends or ethical debates related to AI in creative industries.

Textbook:

Not Applicable

Reference Books

1. Md. Haseen Akhtar (2024), AI for Designers, Springer
2. Neal Hettinger (2024), Modern Graphic Design with AI, Global Publishings.

Open Educational Resources (OER):

Udemy – AI Powered Graphic Design - Midjourney, Firefly, GPT, Bard

Coursera – AI Basics and Tools for Creativity

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	1	2	–	1	2	2	3	2	1	2
CO2	2	3	–	3	2	2	3	3	2	3	–	3
CO3	2	2	3	1	2	2	1	1	2	2	3	1
CO4	2	3	1	3	3	2	3	3	2	3	1	3

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADDEVS657	VASTU SHASTRA	L	T	P	S	C
Version	1.0	1	0	0	1	2
Category of Course	Theory					
Total Contact Hours	30 hrs					
Pre-Requisites/ Co-Requisites	Basics Understanding of Design and Spatial planning					

Course Perspective

The primary objective of this course a traditional knowledge system is to provide interior design students with a comprehensive understanding of Vastu Shastra principles and their application in residential and commercial interior design. By integrating ancient wisdom with modern design practices, students will learn to create harmonious and balanced living and working environments that promote well-being and prosperity.

Course Outcomes

On completion of the course the learner will be:

- CO1. Understanding the historical background and cultural significance of Vastu Shastra.
- CO2. Applying the concept and Principle of Vastu Shastra
- CO3. Analyzing various types of layout and space planning strategies for various spaces in alignment with Vastu Shastra.
- CO4. Identifying various Vastu defects and Vastu Remedies used and in various spaces alignment with Vastu Shastra.
- CO5. Creating space plans and Strategies for various spaces alignment with Vastu Shastra.

Course Content

UNIT I: Introduction and Basic Principles of Vastu Shastra No. of Hours: 7 Hours

- A- Introduction: Vastu Shastra Historical Background and Cultural Significance of Vastu Shastra
- B- Five Elements (Pancha Bhutas): Earth, Water, Fire, Air, and Space
- C- Direction and Attribute: Their Significance: North, South, East, West, and their Sub-Directions and attribute.

UNIT II: Site Selection Planning and Mandala

No. of Hours: 7 Hours

- A- Selecting a Vastu Compliant Site: Shape, Slope, and Surroundings
- B- Orientation: Vastu compass, Orientation of the Building: Placement and Orientation Based on Directions. Vastu and Energy Flow: Concepts of Positive and Negative Energies
- C- Vastu Purusha Mandala: Understanding the Vastu Grid and Its Significance i.e. Vastu-Planets Relationship, etc.

UNIT III: Layout and Space Planning for Interior Spaces No. of Hours: 8 Hours

- A- Entrance: Ideal Placement for the Main Entrance with 32 directions
- B- Ideal Locations Room Placement: Living Room, Bedrooms, Kitchen, Bathrooms, and Pooja Room Open Spaces: Courtyards, Balconies, and Verandas Main Entrance and Its Significance
- C- Avoidances Room Placement: Living Room, Bedrooms, Kitchen, Bathrooms, and Pooja Room Open Spaces: Courtyards, Balconies, and Verandas.

UNIT IV: Remedies, Corrections, & Practical Applications No. of Hours: 8 Hours

- A- Common Vastu Doshas (Defects): Common Vastu Doshas can disrupt harmony in spaces. Identify issues like entrance placement and bedroom location, and then implement solutions to restore balance and positive energy flow.
- B- Use of Vastu Remedies: Mirrors, crystals, colors, and Yantras enhance energy flow and harmony in spaces, promoting positivity and balance.
- C- Identifying and Correcting Vastu Defects: Case Studies, Practical Solutions, Advanced Vastu Remedies: Use of Advanced Yantras, Mantras, Space Clearing Techniques

Learning Experience:

The Vastu Shastra course will be delivered through a combination of theoretical instruction and practical application. The teaching methods are designed to create an interactive, engaging, and culturally relevant learning environment. The learning experience includes both inside and outside classroom activities.

Inside Classroom:

Lectures and Discussions: Key concepts will be introduced through interactive lectures that cover the historical background, principles, and significance of Vastu Shastra. Engaging discussions will encourage critical thinking and deeper understanding.

Hands-on Activities: Students will participate in practical exercises focused on layout planning and space organization according to Vastu principles, allowing them to apply their knowledge directly.

Group Projects: Collaborative projects will enable students to design Vastu-compliant spaces, fostering teamwork and enhancing problem-solving skills as they address real-world challenges.

Outside Classroom:

Site Visits: Students will visit various residential and commercial spaces to assess Vastu compliance and identify defects. This hands-on experience will help bridge the gap between theory and practice.

Case Studies: Analysis of real-life projects will provide insights into the application of Vastu Shastra in modern design, helping students understand how to integrate traditional principles into contemporary environments.

Textbooks

1. "Vastu Shastra: The Ancient Indian Science of Architecture" by B. B. Puri
2. "The Complete Guide to Vastu Shastra" by Dr. V. Ganapati Sthapati
3. "Vastu: Transcendental Home Design in Harmony with Nature" by Vibhuti Chakrabarti

Reference Books

1. Vastu Shastra: For a Healthy, Prosperous, and Happy Life" by Ashwini Kumar
2. "MahaVastu: The Door to Easy Living" by Khushdeep Bansal
3. "The Vastu Vidya Handbook" by Juliet Pegrum
4. "Vastu Shastra: Design Theory and Application for Everyday Living" by Ashwini Kumar
5. "The Vastu Workbook: Using the Subtle Energies of the Indian Art of Placement to Enhance Health, Prosperity, and Happiness in Your Home" by Talavane Krishna
6. "Vastu Shastra and Feng Shui: The Science of Architecture and Interior Design" by Shiv Kumar
7. "Applied Vastu Shastra in Modern Architecture" by S.N. Sinha
8. "Vastu Shastra for Homes, Offices & Factories" by Dr. B. B. Puri.
9. "Vastu: The Indian Art of Placement" by Rohit Arya

Open Educational Resources (OER)

1. <https://www.youtube.com/watch?v=tcLsUQHQ2i8&list=PLInoldgdxquPvtQIpEvZlghnn6HQ098J>
2. Udemy: Vastu Shastra for Beginners: An Introductory Course
3. Vedic Vastu Course (Online Self-Study) offered by Vedic Vaani

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	1	2	1	1	2	3	2	1	–	–
CO2	2	2	2	–	2	–	2	3	2	–	–
CO3	3	3	2	2	2	1	2	3	3	2	–

CO4	2	3	2	2	3	2		2	2	3	3	—
CO5								2	3	2	2	3
1=lightly mapped			2= moderately mapped					3=strongly mapped				

Elective- III
(Semester IX)

Course Code ADDEDM954	Course Title Digital 3D Modeling	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Basic design principles					

Course Perspective:

This course introduces students to the fundamentals of three-dimensional form creation through both traditional sculpting techniques and digital 3D modelling tools. The course emphasizes spatial thinking, proportion, material modelling, and the expressive potential of 3D forms. Students will explore form-making from physical material-based modelling to digital visualization and rendering suited to interdisciplinary design fields.

Course Outcomes (Cos):

CO1. *Identify* the fundamental elements, tools, and materials used in traditional and digital 3D modelling processes.

CO2. *Explain and demonstrate* basic sculptural techniques and digital modelling operations for form development.

CO3. *Analyze* spatial qualities, surface detailing, and construction techniques in physical and digital 3D models.

CO4. *Evaluate* design intent and *create* expressive 3D forms through integrated manual and digital workflows suitable for portfolio presentation.

Course Content:

Unit 1: Fundamentals of 3D Form & Spatial Principles

Hrs: 7

- Elements of 3D design: form, mass, volume, scale, texture, balance
 - Positive and negative space, rhythm, repetition, and symmetry
 - Introduction to geometric and organic forms
 - Sketching and diagramming 3D ideas in 2D
- Activity: Create a basic form model using paper, wire, or clay based on abstracted sketches

Unit 2: Traditional Sculpture & Model Making Techniques

Hrs: 7

- Sculptural processes: additive, subtractive, and assemblage methods

- Materials: clay, plaster, thermocol, cardboard, found objects
 - Surface articulation, texture, and form detailing
 - Relief 234nalysing, armatures, and construction methods
- Activity: Create a themed small-scale sculpture or spatial model using chosen traditional medium

Unit 3: Introduction to Digital 3D Modeling Tools

Hrs: 8

- Basics of 3D software: Blender, SketchUp, Rhino (depending on program context)
 - Interface, navigation, wireframe vs. solid 234nalysing
 - Primitives, mesh editing, extrude, 234nalysi, modifiers
 - Exporting models for visualization or printing
- Activity: Translate a physical sculpture into a simplified 3D digital model using software tools

Unit 4: Conceptual Modeling, Rendering & Application

Hrs: 8

- Visualizing and refining complex forms in digital environment
 - Introduction to materials, lighting, and rendering settings
 - Use of 3D models in different disciplines: architectural massing, character design, product visualization
 - Portfolio documentation and presentation techniques
- Activity: Create a digitally 234nalysin concept project (object, character, space, or installation) and render final outputs for portfolio display

Tools & Materials Required:

- Clay, cardboard, cutting tools, glue, found materials
- Computer with Blender/SketchUp/Rhino installed
- Optional: 3D scanner, camera, drawing tools for ideation

Learning Experience

Inside: Students participate in material-based sculpting and studio exercises guided by faculty, including demonstrations of modeling, shaping, and rendering techniques. Regular feedback and critiques promote design thinking and spatial awareness.

Outside: Students are encouraged to visit sculpture parks, architectural installations, and product design studios to observe 3D forms in context. They maintain a process journal with sketches, material studies, and reflection notes. Students are also exposed to online tutorials for modeling software and may optionally explore 3D printing or AR-ready file formats. The overall learning approach promotes tactile exploration, digital proficiency, and creative expression through 3D form-making.

Textbooks

1. Design Basics: 3D by David A. Lauer & Stephen Pentak
2. Digital Modeling by William Vaughan
3. Sculpture: Processes and Principles by Rudolf Wittkower

Suggested Readings

1. Blender Guru YouTube tutorials
2. Behance, Sketchfab, and ArtStation for reference projects

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	–	1	–	–	3	2	1	–	–
CO2	3	3	–	2	–	–	2	3	2	–	2
CO3	3	3	1	2	1	–	2	3	3	2	2
CO4	3	3	1	3	1	1	2	3	2	3	3
1=lightly mapped				2= moderately mapped				3=strongly mapped			

Course Code	Course Title	L	T	P	S	C
ADDES954	Surface Design					
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Creativity and an interest in textile arts Sewing skills, Painting Skills					

Course Perspective:

This course explores the rich heritage of Indian needle and dye-based crafts while expanding into diverse surface ornamentation techniques across materials. Theoretical and practical knowledge of region-wise Indian embroidery, dye crafts, and innovative surface treatments will be imparted. The course will enhance students' understanding of traditional crafts and encourage them to blend heritage techniques with contemporary innovations across textiles, fashion, furniture, digital surfaces, and spatial design. This will further support Indian artisans and foster cross-disciplinary creative thinking.

Course Outcomes (Cos):

CO1. Identifying various types of materials and methods of surface ornamentation.

CO2. Understanding the development of new motifs based on traditional and modern surface treatment techniques.

CO3. Applying design intervention and innovation using embroidery, dye, and advanced techniques across different material surfaces (wood/metal/stone etc.)

CO4. Analysing embroidery and dye crafts of India and their contemporary relevance across disciplines.

Course Content:

Unit 1: Introduction to Embroidery

Hrs: 7

- Overview of embroidery techniques – hand embroidery and machine embroidery
- Tools and equipment used in embroidery
- Introduction to Indian needlecraft; regional classification of traditional embroidery styles
- Basic embroidery stitches – running stitch, chain stitch, blanket stitch, etc.
- Practice samples of basic stitches including: basting, back stitch, running stitch, chain stitch, blanket stitch, fly stitch, feather stitch, satin stitch, bullion stitch, and French

knot

Activity: Create innovative samples showcasing basic embroidery stitches

Unit 2: Textile Embellishment Techniques

Hrs: 7

- Introduction to Appliqué techniques
- Basics of Quilting
- Introduction to Crochet methods
- Overview of Bead Embroidery

Activity: Design and develop creative samples using appliqué, quilting, crochet, and bead embroidery

Unit 3: Surface Painting Techniques

Hrs: 8

- Introduction to painting and drawing on fabric
 - Use of acrylics, watercolours, and mixed media
 - Techniques of stencilling and spray painting
 - Exploration across materials: fabric, metal, wood, stone, and digital surfaces
- Activity: Create samples using various painting and texturing techniques across different surfaces

Unit 4: Fabric Manipulation Techniques

Hrs: 8

- Fabric Manipulation: Gathers, Shirring, Ruffles, Flounces techniques
 - Application of surface design in textiles, furniture, fashion, digital assets, and spatial design
 - Product development using a combination of mix techniques
- Activity: Create a collaborative concept or prototype that integrates traditional and modern surface ornamentation on selected materials

Tools & Materials Required:

- Drawing/painting materials, Stencils, Acrylic/Water Paints
- Fabric, Needles, Decorative ornaments, metal/wood/stone sample boards
- Stitching tools and machineries

Learning Experience

Inside: In this course, students will participate in hands-on studio sessions covering traditional embroidery and contemporary surface ornamentation techniques. Guided practical exercises will focus on embroidery, appliqué, fabric manipulation, painting, and advanced surface treatments such as laser etching and 3D textures. Theoretical lectures will provide cultural, technical, and interdisciplinary insights. Students will document progress and experimentation in design journals.

Outside: Students will engage in experiential learning through field visits to artisan communities or studios, observe traditional and modern surface ornamentation practices, and participate in collaborative mini-projects. Exposure to exhibitions, fairs, or digital platforms will build awareness of the evolving global context. Students will be encouraged to reflect on the social impact and cross-disciplinary application of surface ornamentation in contemporary design practice.

Suggested Readings

1. Sally Harding (2010) The Needlecraft Book
2. Singer Margo, 2007, Textile Surface Decoration- Silk & Velvet, A & B Black Ltd.
3. Pepin Press, (1999), Indian Textile Prints with CD, PAP/Cdr edition.
4. Colette Wolff, (1996), The Art of Manipulating Fabric

Course Outcomes (Cos)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	-	-	2	-	3	2	2	-	-	2
CO2	1	2	1	-	1	-	1	3	1	2	2	1
CO3	3	3	2	2	3	2	3	1	3	1	3	3
CO4	3	1	3	3	3	2	3	3	3	3	1	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,
 2= strength of co-relation between CO and PSO is Moderate/Medium,
 3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADDEDW954	Design Writing	L	T	S	P	C
Version	1.0	1	0	1	0	2
Category of Course	Elective II					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Basic Communication Skills, Computer Literacy					

Course Perspective:

The course Design Journalism introduces students to the fundamentals of journalism and editorial writing with a focus on design. It equips learners to write effectively across diverse formats such as blogs, articles, case studies, reviews, and captions. Students will explore interview techniques, design critique, and storytelling tailored for targeted audiences. Ethical practices in journalism and content creation are emphasized, along with basic skills in publication layout using tools like InDesign and Canva.

Course Outcomes:

On completion of the course the learner will be:

CO1: Understanding the fundamentals of journalism, editorial writing, and ethical practices within the context of design.

CO2: Applying writing techniques across various formats such as blogs, articles, reviews, and interviews tailored for design communication.

CO3: Analyzing design works and narratives to develop compelling content and critique, along with basic publication layout using tools like InDesign or Canva.

Course Content:

Unit 1: Introduction to Design Journalism

No. of Hours: 7

- A- Definition and scope of journalism in the design context.
- B- Role of a design journalist and editorial writing basics
- C- Evolution of design writing in print and digital media
- D- Introduction to design-focused publications and platforms

Unit 2: Writing for Design Communication

No. of Hours:7

- A- Writing for various formats: blogs, articles, reviews, case studies, captions
- B- Techniques of effective writing: clarity, tone, voice, and audience targeting.

➤ **C- Storytelling methods in design narratives, caption writing and visual-verbal balance**

Unit 3: Interviews, Critiques, and Ethics

No. of Hours: 8

- **A-** Interview techniques: preparing, conducting, and writing interviews
- **B-** Spatial Design: Application of anthropometric data in designing functional spaces for various activities.
- **C-** Anthropometric Standards: Exercises involving the use of anthropometric standards in space design, placement of furniture, kitchen, and toilet fixtures.

Unit 4: Basics of Layout and Publication Design

No. of Hours: 8

- **A-** Introduction to publication tools: InDesign, Canva, or equivalent software
- **B-** Principles of visual hierarchy, typography, and layout design
- **C-** Designing newsletters, e-magazines, and editorial spreads
- **D-** Final compilation: a personal design blog, article series, or publication draft

Learning Experience:

This course encourages students to explore the intersection of design and communication through writing. They gain hands-on experience in creating content across various formats, conducting interviews, and analysing design works. Practical exposure to layout tools like InDesign and Canva enhances their ability to present content visually and professionally. The course fosters critical thinking, ethical awareness, and creative storytelling tailored for design audiences.

Inside Classroom:

Writing and Research Space: Desks with access to internet-enabled computers or laptops for content writing, research, and editing.

Software Tools: Licensed access to Adobe InDesign, Canva Pro, or equivalent layout and design software.

Interview Setup: Basic audio recording tools or mobile setups for students to practice interview techniques.

Pin-up Boards or Display Wall: For showcasing editorial layouts, caption-writing exercises, and article drafts for critique and discussion.

Outside Classroom:

Content Creation Assignments: Tasks like writing blog posts, reviews, or case studies based on events, projects, or personal observations in the field.

Publication Opportunities: Platforms to publish student articles in college newsletters, design magazines, or online blogs.

Textbook: NA

Reference Books

1. Bill Kovach & Tom Rosenstiel, "The Elements of Journalism: What Newspeople Should Know and the Public Should Expect", Crown Publishing Group
2. Lu Yikun and Dong Zhao, "Visual Storytelling: Infographic Design in News", Images Publishing Group

Open Educational Resources (OER)

https://swayam.gov.in/nd2_cec21_ge30/preview

https://swayam.gov.in/nd2_ugc19_hs23/preview

<https://www.canva.com/designschool>

Course Outcomes (Cos)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2		-	3		2	2	2	-	-	-
CO2	2	3	2	-	3		2	3	3	-	1	-
CO3	2	2		3	2	3	3	3	3	-	2	-

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADDEUI954	Interactive Media and UI Design	L	T	S	P	C
Version		1	0	1	0	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Digital literacy, Logical thinking					

Course Perspective:

This course introduces students to the fundamentals of User Interface (UI) and User Experience (UX) design, focusing on creating intuitive and user-centered digital interfaces. It emphasizes practical understanding of design principles, user journeys, and beginner-friendly tools to equip students for real-world applications.

Course Outcomes:

On completion of the course the learner will be:

CO1: Define and explain the fundamental concepts of UI and UX, and differentiate between them.

CO2: Apply basic visual design principles to create simple and effective UI layouts.

CO3: Analyze user needs and map user journeys for common digital experiences.

CO4: Develop low-fidelity wireframes and interactive prototypes using beginner-friendly design tools.

Course Content:

Unit 1: Introduction to UI and UX

No. of Hours: 7

Introduction of UI, Introduction of UX, Understanding the difference and relationship, Importance of user-centered design, Real-world examples of good and bad UI/UX.

Unit 2: Basic Principles of UI Design

No. of Hours: 7

Visual hierarchy, consistency, and simplicity, Color theory, typography, and layout basics for screens, Understanding responsive design (mobile-first concept).

Unit 3: Introduction to UX Processes

No. of Hours: 8

User research: Personas and user journey maps, Wireframing: Low-fidelity prototypes, Basics of usability and accessibility.

Unit 4: Tools and Simple Prototyping

No. of Hours: 8

Overview of beginner-friendly tools: Figma, Canva, Adobe XD, Creating interactive prototypes (linking screens, adding buttons), Introduction to no-code platforms: Webflow/Wix.

Learning Experience:

Students will learn through interactive lectures, hands-on exercises, and collaborative design projects. They will engage with real-world examples and use popular design tools to create wireframes and prototypes. Peer reviews and feedback sessions will help develop critical evaluation and design refinement skills.

Inside Classroom:

- Analyze popular apps/websites for UI and UX effectiveness.
- Wireframing exercises on paper and digital platforms (Figma/Canva).
- Group discussions on user-centered design and accessibility.
- Interactive prototyping workshops using beginner-friendly tools.

Outside Classroom:

- Conduct short user surveys or interviews to identify common pain points in digital experiences.
- Observe and document user interactions with a chosen app or website.
- Create a mood board or style guide for a conceptual project.
- Develop a mini project (personal portfolio or small business website prototype) and present for peer feedback.

Textbook:

Not Applicable

Reference Books

1. Irene Pereyra (2023), Universal Principles of UX, Rockport Publishers
2. Christian Muller-Roterberg (2021), Design Thinking for Dummies, Wiley

Open Educational Resources (OER):

- Webflow University: <https://university.webflow.com>
- Framer Tutorials: <https://www.framer.com/learn>

➤ Wix Learn: <https://www.wix.com/learn>

Elective ADDEAC954			ARCHITECTURAL CONSERVATION					L	T	P	S	C
Version			2025-26					1	0	0	1	2
Category of Course							Major (Theory)					
Total Contact Hours							30					
Pre-Requisites/ Co-Requisites							Historical Sensitivity, Cultural Awareness					
COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	1					3	1				3
CO2	2	3						3	1			2
CO3		2	3				1		3			1
CO4	2	3		3				2		3		2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Elective ADDEAC954	ARCHITECTURAL CONSERVATION	L	T	P	S	C
Version	2025-26	1	0	0	1	2
Category of Course		Major (Theory)				
Total Contact Hours		30				
Pre-Requisites/ Co-Requisites		Historical Sensitivity, Cultural Awareness				

Course Perspective

To understand what heritage and its importance in terms of Architecture is, structure, materiality and its significance in the evolution of the mankind in understanding nature and adapt and make its dwelling units respecting the nature and local climatic conditions. The overall goal is to conserve our rich heritage specially built heritage to showcase the richness of our Architecture, culture & society during various period and regime and promote conservation of our heritage for our future generations to see and learn evolution in building architecture and technologies during various time periods. Our main objective will be to document the heritage of our city and make guidelines, policies, conservation plans for built heritage structures, Heritage precincts and region with respect to its economic viability and spread awareness in the locals and institutions through workshops which will help in sustainable development of the societies.

Course Outcomes

CO 1: Define and explain conservation and its process.

CO 2: Understand & study techniques of conservation.

CO 3: Apply, troubleshoot, and implement conservation-related solutions with previously done works and research.

CO 4: Analyze the process of documenting the work of conservation.

CO 5: Evaluate & prioritize the materials and techniques to be used for conservation under various conditions.

Course Content

Unit I: Introduction to Architectural Conservation

No. of Hours 7

- Definition of heritage, what is an historic building? Introduction to architectural conservation of buildings of importance – definition, nature, purpose and scope. Values in conservation; Ethics of conservation building conservation legislation etc.

Unit II: Defects in Heritage

No. of Hours: 7

- Causes of defects and decay of a heritage structure. Natural agents of deterioration and loss.

Unit III: Preparatory Procedures for Conservation.

No. of Hours: 8

- Preparatory procedures for conservation. Initial inspection, Continuing Documentation, Analysis of the documentation.
- Role or need of documentation for the conservation & restoration of the any Heritage built form, Heritage precincts or any sort of tangible and Intangible heritage.
 - Listing of the Region or Precincts for generating a data base of the heritage properties.
 - Building material, Construction techniques of Heritage structures in various typologies of buildings with respect to time.

Unit IV: Introduction to International Charters

No. of Hours: 8

- Introduction to various charters their significance and their role in guiding our conservation policies and guidelines or regional level and structural level (special reference to Barra and Venice charter).

Learning Experience

Inside: Students explored the fundamental principles, ethics, and values of architectural conservation through lectures, case studies, and discussions. Key topics included definitions of heritage, causes of structural decay, and documentation methods. Visual presentations of conservation projects and international charters like the Venice and Burra Charters helped students connect global guidelines with local practices. Analytical thinking was encouraged through debates on heritage ethics and materials. Hands-on exercises like defect identification and material analysis were integrated into class sessions, enabling students to interpret conservation issues critically and apply theoretical knowledge to real-life architectural heritage challenges.

Outside: Learning extended through site visits, field surveys, and documentation exercises of local heritage buildings. Students conducted on-site condition assessments, identified material deterioration, and engaged with community stakeholders to understand the social relevance of heritage structures. They prepared A3 conservation reports analyzing defects and proposing context-sensitive solutions. Visits to INTACH offices and heritage precincts enhanced understanding of policies and charters in practice. These real-world experiences enabled students to apply classroom theories, develop observation and analysis skills, and understand the socio-economic context of conservation, promoting awareness and responsibility toward preserving architectural heritage for future generations.

Suggested Readings/ Textbooks

- An introduction to conservation by Feildon B. M.
- Conservation of Building by I. H. Harvey.
- A critical bibliography of Building Conservation by Smith I. H.
- Sir Bernard M. Feilden; Conservation of Historic Buildings, Architectural Press, London.
- A.G. K. Menon & B. K. Thapar; Heritage Zones
- Xavier Greffe; Managing our Cultural Property; Aryan Book International, New Delhi.
- Robert Pickard; Policy Involved in Heritage Conservation
- Conservation in India: Architecture + Design; A Journal for the Indian Architect, Vol VI No 1, Nov Dec 1989.
- William Dalrymple; City of Djinns; Bloomsbury Publishing India, New Delhi; 2017.

Open Educational Resources (OER)

- <https://www.archdaily.com/1012700/conservation-architecture-in-india-living-buildings-and-cultures>
- <http://architecturalheritage.intach.org/>

CO \ PO/PS O	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PS O5
CO1	2		3	2	2		3		2		
CO2	2	3	2	2	2		3	2	3	2	
CO3	3	3	2	3	2	1	3	3	3	3	2
CO4	2	2	2	3			3	2	3	3	1
CO5	2	3	3	2	3	1	3	3	3	3	2

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation pattern: (100% internal)

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/project/visit report/case study/model/viva	Class Test/Time Problem/Viva	Exhibition/Presentation/Viva	iCloud/Academia (online)

Elective- IV
(Semester X)

Course Code ADDEDV1052	Course Title Digital Video & Motion Design	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Visual storytelling basics					

Course Perspective:

This course introduces students to the principles and practice of video production and motion graphics. It combines traditional cinematography with digital storytelling, editing workflows, and animated visuals. Students will develop skills in scripting, filming, editing, and motion design, enabling them to create content for social media, design communication, branding, and portfolio narratives.

Course Outcomes (COs):

CO1. Recall and understand the fundamental principles of videography, sound, and camera techniques.

CO2. Apply video editing tools and workflows to construct time-based visuals with audio, transitions, and effects.

CO3. Analyze and evaluate motion graphics elements, including animated text, infographics, and integration of 2D/3D design assets.

CO4. Create cohesive video projects that combine footage, animation, and storytelling techniques for design communication.

Course Content:

Unit 1: Foundations of Video Production

Hrs: 7

- Introduction to videography: frame rate, resolution, aspect ratio
- Camera angles, shot types, movements
- Basics of lighting and audio recording
- Scripting and visual storyboarding
- Video planning: moodboards, shot lists, pre-production
- Activity: Shoot and edit a basic 30–60 sec video sequence using different shot types and angles.

Unit 2: Editing Techniques & Workflow

Hrs: 7

- Introduction to editing interfaces: Adobe Premiere Pro, CapCut
- Cutting, trimming, transitions, speed control
- Audio syncing, background score, and effects
- Text overlays, lower thirds, and basic color correction
- Activity: Edit a 60–90 sec narrative video using recorded clips and sound elements

Unit 3: Motion Graphics & Animation Basics

Hrs: 8

- Introduction to After Effects and animation tools
- Keyframing, text animation, transitions
- Animated infographics, intro/outro reels
- Integrating 2D/3D assets into motion sequences (e.g., logos, illustrations, models)
- Activity: Create a 15–30 sec animated reel or intro sequence with motion graphics

Unit 4: Time-Based Storytelling & Final Production

Hrs: 8

- Narrative structure for short films, reels, portfolio videos
- Visual pacing, rhythm, and transitions
- Exporting for web, social media, and presentations
- Presentation and critique of short video projects
- Activity: Final project – Create a 60–90 sec video integrating live footage, sound, graphics, and 2D/3D design elements.

Tools & Materials Required:

- Adobe Premiere Pro
- Adobe After Effects
- CapCut (for mobile/tablet editing)
- Optional: DSLR or smartphone with tripod, external mic
- Access to 2D/3D assets (from previous courses)

Learning Experience

Inside: Students engage in live demonstrations, hands-on editing labs, and group-based critique sessions. They participate in video shooting activities, animation practices, and software tutorials guided by faculty.

Outside: Students are encouraged to document field visuals, conduct interviews, or record material for personal video experiments. They maintain a production journal for storyboards, shot plans, and visual references. Visits to exhibitions, film screenings, or digital media studios may also be arranged. Independent exploration of software tools and motion graphics trends is supported through curated online resources and social media platforms.

Textbooks

1. The Visual Story by Bruce Block
2. Digital Filmmaking Handbook by Ben Long & Sonja Schenk

Suggested Readings

1. Adobe Creative Cloud tutorials (official)
2. YouTube/Skillshare masterclasses on motion graphics
3. Vimeo/Behance for reference projects

Evaluation Scheme

	Total Maximum Marks: 100
--	---------------------------------

Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	–	1	–	–	3	2	–	–	–
CO2	3	3	–	2	–	–	2	3	2	–	2
CO3	2	3	1	3	1	1	2	3	3	2	2
CO4	3	3	1	3	1	2	2	3	2	3	3
1=lightly mapped 2= moderately mapped 3=strongly mapped											

Course Code ADDEDS1052	Course Title Design Styling	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Basic understanding of design elements, composition, and color theory is recommended.					

Course Perspective:

This course introduces students to the core principles and practices of styling across fashion, interiors, product displays, and digital environments. Through an interdisciplinary approach combining aesthetics, storytelling, and spatial design, students will gain theoretical and practical understanding of how styling influences perception, emotion, and user experience. The course will train students to conceptualize and execute styling setups for photo shoots, retail spaces, social media, game environments, and more. Emphasis will be placed on developing creative direction, visual balance, and context-sensitive styling choices through hands-on studio work and real-world observations.

Course Outcomes (COs):

CO1: Identifying key principles and components of styling across physical and digital environments.

CO2: Developing styling themes, compositions, and mood boards for diverse creative contexts.

CO3: Applying styling techniques in photo shoots, fashion ensembles, interiors, product setups, and digital interfaces.

CO4: Analyzing styling effectiveness through critique, visual strategy, and user/audience engagement.

Course Content:

Unit 1: Principles of Styling and Visual Composition

Hrs: 7

- Elements and principles of styling: balance, harmony, contrast, proportion, rhythm
- Composition techniques: layering, negative space, repetition, alignment
- Storytelling through styling: mood, narrative, and theme creation

- Understanding visual hierarchy and emotional impact
Activity: Develop themed styling mood boards using collected visuals and original concepts. Present and critique styling compositions.

Unit 2: Styling for Shoots and Display Environments

Hrs: 7

- Styling for fashion photography and fashion looks
- Interior styling: placement, textures, lighting, and decor synergy
- Product display styling: retail display, flat lays, branding alignment
- Role of prop selection and space organization
Activity: Plan and execute a photoshoot or product display styling set using chosen props and visual storytelling.

Unit 3: Styling in Digital Media and Interfaces

Hrs: 8

- Styling avatars, user personas, and digital fashion
- Interface aesthetics: layout styling for websites, apps, and social feeds
- Game environment styling and world-building elements
- Styling strategies for Instagram, Pinterest, digital exhibitions
Activity: Design a digital styling board for a virtual avatar, interface, or social media presence. Present rationale behind styling decisions.

Unit 4: Styling Integration and Studio Practice

Hrs: 8

- Studio-based exploration: creating thematic styling boards
- Concept integration across fashion, interiors, and product categories
- Styling for visual merchandising: case studies and trend analysis
- Project-based learning: collaborative or individual final styling concept
Activity: Create and present a comprehensive styling project integrating digital and physical styling techniques. Submit design journal and concept deck.

Tools & Materials Required:

- Styling props: fabrics, garments, decor objects, miniatures, print media
- Digital tools: Canva/Photoshop for mood boards and digital layouts
- Cameras or smartphones for documentation
- Studio and display space access for setup

Learning Experience

Inside:

Students will participate in studio-based styling exercises, guided workshops, and concept development sessions. Emphasis will be on experimentation with real materials and digital tools. Peer critiques and instructor feedback will enhance individual styling perspectives.

Outside:

Students will conduct observational research in stores, photo studios, or digital platforms. They may attend or document exhibitions, digital fashion shows, or retail windows. Independent styling challenges will help students apply theory to dynamic, real-world scenarios.

Suggested Readings

1. Emily Henderson (2015), *Styled: Secrets for Arranging Rooms, from Tabletops to Bookshelves*
2. Sarah Andrews (2021), *The Art of Styling: Interiors, Fashion & Beyond*
3. WGSN & Pinterest Reports – Trends in Visual Merchandising and Styling

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	-	-	1	-	3	2	2	-	-	2
CO2	2	1	2	-	2	-	2	3	2	2	3	1
CO3	1	3	1	2	3	3	1	1	1	1	2	3
CO4	3	2	3	3	3	2	3	3	3	3	1	3

1= indicates the strength of co-relation between CO and PSO is Weak/low

2= strength of co-relation between CO and PSO is Moderate/Medium

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Course Code ADDESM1052	Course Title SOCIAL MEDIA STORYTELLING	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course	Elective					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Familiarity with digital tools and basic visual communication concepts is recommended.					

Course Perspective:

This course empowers creative professionals to navigate, utilize, and optimize social media platforms for brand growth, audience engagement, and digital visibility. It provides a practical and theoretical foundation for effective storytelling, visual branding, analytics, and professional portfolio development. Students will explore tools and strategies to curate compelling content, analyze performance metrics, and design a personalized online presence across platforms such as Instagram, LinkedIn, Behance, and more. By the end of the course, learners will be equipped to create meaningful, purpose-driven digital interactions that enhance their creative practice and career trajectory.

Course Outcomes (COs):

CO1: Mapping major social media platforms, their formats, and key audience engagement features.

CO2: Integrating principles of branding, storytelling, and content design for creative professionals.

CO3: Implementing tools and strategies for content creation, planning, scheduling, and portfolio optimization.

CO4: Evaluating audience engagement, platform metrics, and the effectiveness of social media strategies.

Course Content:

Unit 1: Introduction to Social Media Platforms and Content Types

Hrs: 7

- Overview of key platforms: Instagram, Facebook, LinkedIn, YouTube, Pinterest Behance
- Content formats: posts, reels, stories, carousels, video content, blogs
- Understanding target audiences and platform-specific behavior

- Trends and visual language for creators
Activity: Research and present a platform audit on 2 creators/brands. Create content samples for 2 platforms based on a unified theme.

Unit 2: Branding and Storytelling for Creative Professionals

Hrs: 7

- Essentials of personal branding: tone, aesthetics, and identity
- Crafting a compelling creator story and visual voice
- Visual storytelling: themes, mood boards, content grids
- Brand consistency across platforms
Activity: Design a creator identity kit (logo, color palette, typography, content layout) and storytelling strategy for personal or fictional brand.

Unit 3: Content Scheduling, Engagement & Analytics

Hrs: 8

- Strategic content planning and calendar creation
- Engagement tactics: hashtags, captions, call-to-action, community building
- Tools overview: Buffer, Hootsuite, Meta Business Suite
- Analytics: reach, impressions, engagement rate, follower growth
Activity: Create and present a one-week content calendar. Simulate performance tracking with mock data analytics.

Unit 4: Digital Portfolios, Reels, and Professional Platforms

Hrs: 8

- Creating digital portfolios: LinkedIn, Behance, Instagram Highlights
- Best practices for reels and video storytelling
- Case studies of successful creator portfolios
- Canva for prototyping and content design
Activity: Develop and present a digital portfolio using LinkedIn or Behance. Design an interactive reel-based pitch for a creative project.

Tools & Materials Required:

- Internet-enabled device (laptop/mobile)
- Canva accounts
- Access to Instagram, LinkedIn, Behance

Learning Experience

Inside:

Students will participate in interactive sessions involving hands-on content creation, portfolio development, and branding exercises. Sessions will include tool-based workshops using Canva, Meta Suite, and scheduling platforms. Faculty-led discussions and peer reviews will foster feedback-driven development.

Outside:

Students will study real-world creators, perform online platform research, and participate in collaborative content challenges. They will engage in digital exhibitions or creator showcases, build community engagement strategies, and reflect on the ethical and professional use of social media as a creative tool.

Suggested Readings

- Gary Vaynerchuk (2018) – *Crushing It!: How Great Entrepreneurs Build Their Business and Influence—and How You Can, Too*
- Austin Kleon (2014) – *Show Your Work!: 10 Ways to Share Your Creativity and Get Discovered*

Course Outcomes (COs)	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5	PSO6
CO1	3	2	-	-	2	-	3	2	2	-	-	2
CO2	2	1	1	-	1	-	2	3	3	2	3	2
CO3	1	3	2	3	3	1	1	3	3	3	3	3
CO4	3	2	3	3	3	2	3	3	3	3	3	3

1= indicates the strength of co-relation between CO and PSO is Weak/low

2= strength of co-relation between CO and PSO is Moderate/Medium

3= strength of co-relation is Strong/High

Evaluation Scheme

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

ADDEDR1052	Design Realities: AR/VR	L	T	S	P	C
Version	1.0	1	0	1	0	2
Category of Course	Elective III					
Total Contact Hours	30					
Pre-Requisites/ Co-Requisites	Computer Literacy/ Digital Fabrication, Computational Design, or Graphic Visualization					

Course Perspective:

This course introduces students to the emerging world of Augmented Reality (AR), Virtual Reality (VR), and immersive design experiences in the context of architecture and interior design. It focuses on the fundamentals of AR/VR technologies, spatial interaction, and 3D environment creation using tools like Unity or Unreal Engine. Students learn to integrate previously developed 3D models into interactive virtual spaces and explore applications such as virtual walkthroughs, showrooms, exhibitions, and installations.

Course Outcomes:

On completion of the course the learner will be:

CO1: Understanding the fundamentals of AR/VR technologies, hardware systems, and their relevance in design communication and experience.

CO2: Applying immersive design tools like Unity or Unreal Engine to create interactive 3D environments, spatial UI, and virtual walkthroughs.

CO3: Analyzing the role of immersive technologies in architectural and interior contexts through critical evaluation of user experience, functionality, and design impact.

Course Content:

Unit 1: Introduction to AR/VR Technologies

No. of Hours: 7

- A- Overview of AR (Augmented Reality), VR (Virtual Reality), and MR (Mixed Reality)
- B- Types of immersive experiences and applications in design
- C- Understanding hardware: VR headsets, AR devices, motion sensors, and haptics
- D- Case studies in architecture, interior design, and experiential spaces

Unit 2: Tools and Platforms for Immersive Design

No. of Hours: 7

- A- Introduction to game engines: Unity and Unreal Engine (basic interface & setup)
- B- Importing 3D models and assets
- C- Setting up basic interactions, navigation, and camera control
- D- Introduction to XR plugins and device integration

Unit 3: 3D Environment Design & Spatial UI

No. of Hours: 8

- A- Designing virtual environments and spatial interfaces
- B-. Lighting, textures, and material application
- C- Sound design and immersive storytelling
- D- Integration of previously created architectural/interior 3D models

Unit 4: Applications and Project Development

No. of Hours: 8

- A- Creating walkthroughs, virtual exhibitions, and immersive showrooms
- B- Applications in interior decor, landscape visualization, and interactive installations
- C- Prototyping and user experience testing
- D- Final immersive design project with real-time presentation

Learning Experience:

This course offers students hands-on exposure to cutting-edge technologies that enhance spatial visualization and design interaction. Through tools like Unity or Unreal Engine, students create immersive environments and virtual walkthroughs. They gain practical skills in integrating 3D models with digital storytelling, enhancing their ability to communicate design ideas in innovative ways. The course fosters creativity, technical proficiency, and future-ready thinking in architectural and interior design contexts.

Inside Classroom:

Lectures and Demonstrations on AR/VR concepts, tools, and hardware.

Hands-on Practice using Unity or Unreal Engine to develop interactive 3D environments.

Workshops on spatial UI, navigation design, and immersive storytelling.

Model Integration Sessions using student-created 3D models from previous semesters.

Outside Classroom:

Exploration of AR/VR Apps and platforms to study real-world applications in design.

Project Development involving documentation, testing, and refining of immersive spaces.

Textbook: NA

Reference Books

3. Tony Parisi, "Learning Virtual Reality: Developing Immersive Experiences and Applications for Desktop, Web, and Mobile" O'Reilly Media
4. Association for Computing Machinery (ACM) and Morgan & Claypool, "The VR Book: Human-Centered Design for Virtual Reality", Jason Jerald

Open Educational Resources (OER) –

<https://www.unrealengine.com/en-US/onlinelearning-courses>

<https://www.coursera.org/learn/introduction-augmented-reality-ar>

Course Outcomes (COs)	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5	PSO 6
CO1	3	2	-	2	3	1	2	3	2	-	-	-
CO2	2	3	3	2	3	2	3	2	3	-	-	-
CO3	1	2	2	3	2	3	2	3	2	-	1	-

1 indicates the strength of co-relation between CO and PSO is Weak/low,

2= strength of co-relation between CO and PSO is Moderate/Medium,

3= strength of co-relation is Strong/High

Evaluation Scheme:

	Total Maximum Marks: 100			
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Course Code ADDEPM1052	Course Title Parametric Modeling	L	T	P	S	C
Version ____		1	0	0	1	2
Category of Course		Elective				
Total Contact Hours		30				
Pre-Requisites/ Co-Requisites		Basic 3D modeling				

Course Perspective:

Parametric Design is transforming the way designers approach form, space, material, and performance. This course introduces students to the logic and workflows of parametric thinking and computational design. Through algorithmic modeling and visual scripting tools, students learn to develop dynamic design systems that respond to data, environmental conditions, and performance criteria. The course encourages experimentation, critical inquiry, and creative exploration through digital modeling and fabrication workflows, making it relevant across disciplines like architecture, interior, fashion, and product design.

Course Outcomes (COs):

At the end of the semester the student is able to:

- CO1: Explain key concepts of parametric thinking, algorithms, and computational design.
- CO2: Interpret and modify parametric relationships using visual scripting environments (e.g., Grasshopper).
- CO3: Develop digital models that generate responsive or variable design outputs through parameters.
- CO4: Evaluate the performance and functionality of parametric systems in design applications.
- CO5: Create an original design prototype using parametric design logic integrated with digital fabrication.

Course Content:

Unit 1: Foundations of Parametric Thinking (Hours: 7)

- What is parametric design? Evolution and contemporary context
- Algorithms and logic-based design
- Differences between traditional and parametric workflows
- Introduction to tools: Grasshopper (for Rhino), Dynamo (for Revit), Blender add-ons
- Design precedents using parametric strategies across disciplines

Unit 2: Visual Programming and Basic Operations (Hours: 7)

- Interface and basics of Grasshopper/Dynamo

- Data types, lists, trees, and workflows
- Geometric primitives, transformation, pattern generation
- Modifying parameters and controlling geometry
- Exercises in scripting form-based logic

Unit 3: Responsive and Performance-Based Design *(Hours: 8)*

- Input from environmental, material, or user behavior data
- Introduction to simulation and performance tools (e.g., Ladybug, Kangaroo)
- Feedback loops and optimization
- Parametric analysis for daylight, structure, energy, or ergonomics
- Case studies and hands-on exercises

Unit 4: Prototyping and Fabrication Integration *(Hours: 8)*

- Digital fabrication workflows (laser cutting, 3D printing, CNC basics)
- Data preparation from parametric models
- Material selection and testing
- Group design project: develop a parametric system and fabricate a prototype
- Final review and critique

Tools & Materials Required:

- Field and Documentation Tools: Waste audit sheets, measuring tape, smartphone/camera for site documentation, PPE (helmet, mask, shoes), and notebooks/sketchbooks for recording observations.
- Digital and Reference Materials: Spreadsheet software (Excel/Google Sheets), access to AutoCAD or sketching tools, government guidelines (e.g., SWM & C&D Rules 2016), and presentation tools for project work.

Learning Experience

Inside: Students are introduced to the theory and logic behind parametric design through lectures, tool demos, and guided exercises using platforms like Rhino-Grasshopper or Dynamo. Studio sessions focus on iterative modeling and problem-solving, with peer reviews and case discussions to reinforce critical thinking.

Outside: Students will explore toolkits and tutorials, engage in design experiments, and document their process digitally. The course culminates in a group or individual project that integrates parametric logic with real-world constraints, material behavior, and fabrication techniques—providing students with practical experience in translating algorithmic thinking into tangible design outcomes.

Textbooks

1. TIFAC (2015). Utilization of Waste from Construction Industry. Department of Science and Technology, Govt. of India.
2. Pichtel, J. (2014). Waste Management Practices: Municipal, Hazardous, and Industrial. CRC Press.

References

1. CPWD (2019). *Guidelines on Environmental Management of Construction & Demolition (C&D) Waste*.
2. BIS Code: IS 383 – *Specification for Coarse and Fine Aggregates from Natural Sources for Concrete*.
3. Ghosh, S. (2021). *Construction and Demolition Waste Management in India*. Springer.

Suggested Readings

1. Ministry of Environment, Forest and Climate Change (MOEFCC) – <https://moef.gov.in>
2. Construction and Demolition Waste Rules, 2016 – CPCB Guidelines
3. NITI Aayog & GIZ Reports on Circular Economy in Construction Sector
4. Smart Cities Mission: Sustainability and Waste Management Practices
5. Online platforms like IGBC, CII-Green Business Centre, and TERI

Evaluation Scheme

Total Maximum Marks: 100				
Component	Assignments	Major 1	Review	Attendance
Marks	50	20	20	10
Level	Continuous Assessment	End Term Internal	End Term	Continuous Assessment
Mode	Presentation/ Project/ visit report/ case study/ model/ Viva	Class Test/ Time Problem/ Viva	Exhibition/ Presentation/ Viva	iCloud/ Academia (online)

Programme and Course Mapping											
CO	PO1	PO2	PO3	PO4	PO5	PO6	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	2	–	–	–	–	3	2	–	–	–
CO2	2	3	–	1	–	–	2	3	2	–	2
CO3	3	3	–	2	1	–	2	3	2	2	2
CO4	2	3	1	2	2	–	2	2	3	3	2
CO5	3	3	1	2	2	1	2	3	2	3	3
1=lightly mapped 2= moderately mapped 3=strongly mapped											

ANNEXURE 2

Standard Operating Procedures (SOPs as per Handbook of Professional Documents 2025, Council of Architecture).

Architectural Dissertation (ADARDS753)

1. Topic Selection:

Dissertation is research writing in a thrust area in architecture.

Students must submit a Dissertation Proposal with:

- Title and abstract
- Research Aim and objectives
- Methodology

2. Dissertation Guide

Each student is assigned a faculty guide with relevant expertise.

The guide provides academic supervision, feedback, and ensures adherence to research ethics and timelines.

3. Research Methodology

Methods of analysis should have a scientific basis with thorough investigative research from primary and secondary sources. This can be a prelude to Architectural Thesis. Students may use qualitative, quantitative, or mixed methods.

Common methods include:

- Literature review
- Case studies
- Documentation, surveys and interviews.
- Data interpretation and synthesis

4. Timeline and Stages of Submission

The timeline for dissertation is one semester. Stages of submission include:

- Proposal approval
- Literature review submission
- Case study review
- Draft submission with outcomes
- Final submission and presentation

5. Submission Requirements:

The final dissertation must include:

- Title page, abstract, acknowledgments
- Table of contents
- Chapters (Introduction, Literature Review, Methodology, Analysis, Conclusion)
- References (APA/MLA/Chicago style/Harvard style)
- Appendices (if any)

Both printed and digital copies must be submitted.

6. Plagiarism and Ethics

All work must be original and properly cited.
Plagiarism must result in disqualification.

7. Archiving and Publication

Digital copies of dissertation are retained for COA and institutional records. Hard copies of dissertations may be archived in the institutional library. Selected dissertations may be published in academic journals.

Annexures:

Template of the Dissertation report.



NAME OF THE TOPIC

BY
NAME OF THE STUDENT
ENROLLMENT NO: XXX
IV YEAR, B.ARCH.

COORDINATORS

GUIDE

**DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF
THE B.ARCH. DEGREE**

DISSERTATION REPORT: 2025-29

SCHOOL OF ARCHITECTURE & DESIGN
K.R. MANGALAM UNIVERSITY

DECLARATION

I,....., here by solemnly declare that the dissertation work undertaken by me, titled is my original work and whatever information I have incorporated in the form of photographs, text, data, maps, drawings, etc., from different sources, has been duly acknowledged in my report.

Date:

Signature of the student

Name:.....

Place:.....

CERTIFICATE

This dissertation report is submitted by **NAME OF THE STUDENT, ENROLLEMENT No-**, student of 4th Year School of Architecture & Design, K.R. Mangalam University, Gurgaon, Session:XX-XX.

Originality of information and opinion expressed in this dissertation are of the Author and do not necessarily reflect those of the Guide or the Coordinator or the Institute.

Date:.....

Place:.....

Student: **NAME OF STUDENT**

Signature of Dissertation Coordinator's:

Signature of Guide:

:

School of Architecture & Design,
K.R. Mangalam University,
Gurugram

ACKNOWLEDGEMENT

XXXX

TABLE OF CONTENTS

Acknowledgement	i
Abstract.....	ii
List of Tables.....	iii
List of Illustrations/Figures.....	vii

Chapter 01 : INTRODUCTION

- 1.1
- 1.2
- 1.3
- 1.4

Chapter 02 :

- 2.1
- 2.2
- 2.3
- 2.4

Chapter 03 :

- 3.1
- 3.2
- 3.3
- 3.4

Chapter 04 :

- 4.1
- 4.2
- 4.3
- 4.4

Chapter 05 : URBAN INTERVENTION

- 5.1
- 5.2
- 5.3
- 5.4

ANNEXURE I : Design Sheets

ANNEXURE II : XXX

Bibliography

LIST OF TABLES

Table 2.1 : xxx	14
Table 2.4a : yyy.....	26
Table 3.4b : zzz	27

LIST OF FIGURES

Figure 1.1 : xxx	14
Figure 2.3c : yyy.....	26
Figure 5.1b : zzz	27

CHAPTER 01 : XXX

1.1 Introduction - XXX

khfkwehfkjdvncierhvkjrbvkjenvkjevkJeb



Figure 1 : hdkehwhfwhfvv [Source : xxxx/Author]

BIBLIOGRAPHY

Please follow Harvard Referencing Style –

See Attachment

It shall follow the alphabetical order

ADAMS A. (2008), *The Pinnacle@Duxton*,
[online] Available at :
<http://www.skyscrapercity.com/showthread.php?t=161688&page=31> (Accessed on
25.07.2011)

AR (1985), *Living Together Housing*,
Architecture review, April 1985 pgs 63-71

BARTON H., GRANT M. & GUISE R.
(2003), *Shaping Neighbourhoods :
For Local Health and Global Sustainability*,
Routledge, Oxon & NY

ANNEXURE 3

Standard Operating Procedures (SOP's as per Handbook of Professional Documents 2025, Council of Architecture).

Architectural Thesis II (ADARAT1051)

2. Topic Selection:

Topics must be relevant to contemporary architectural discourse and approved by the Thesis Committee. Students are encouraged to choose topics that address real-world issues, innovation, sustainability, or urban challenges.

A formal Thesis Proposal must be submitted, including:

- Title and abstract
- Statement of intent
- Research questions and methodology
- Preliminary case studies
- Site

8. Thesis Guide

Each student is assigned a faculty guide with relevant expertise.

The guide provides academic supervision, design feedback, and ensures adherence to timelines. The institution shall conduct internal evaluation with guide as the co-assessor.

9. Timeline and Stages of Submission

The thesis is conducted over one full semester. Stages of submission include:

- Proposal Submission
- Literature Review & Case Studies
- Conceptual Design
- Mid-Semester Review
- Final Design Development
- Final Jury Presentation

10. Submission Requirements:

The final submission must include:

- Design drawings (plans, sections, elevations, views)
- Conceptual diagrams and process sketches.
- Research documentation
- Physical models and 3D images.
- A bound thesis report (printed and digital copy).

11. Evaluation and Jury

The final evaluation is conducted by a jury panel with internal and external examiners. The external examiners shall have a minimum experience of 10 years. Students must defend their thesis through a viva voce, articulating their design rationale and responding to critiques.

12. Plagiarism and Ethics

All work must be original and properly cited. Plagiarism must result in disqualification. Students must follow ethical practices in research, data collection, and design representation.

13. Archiving and Publication

Digital copies of thesis are retained for COA and institutional records. Hard copies may be archived in the institutional library. Selected thesis may be published in academic journals or exhibitions.

Annexures:

Template of the Thesis Report.



NAME OF THE TOPIC

BY
NAME OF THE STUDENT
ENROLLMENT NO: XXX
V YEAR, B.ARCH.

COORDINATOR

GUIDE

THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE B.ARCH. DEGREE

THESIS REPORT: 2025-29

SCHOOL OF ARCHITECTURE & DESIGN
K.R. MANGALAM UNIVERSITY

DECLARATION

I,....., here by solemnly declare that the thesis work undertaken by me, titled is my original work and whatever information I have incorporated in the form of photographs, text, data, maps, drawings, etc., from different sources, has been duly acknowledged in my report.

Date:

Signature of the student

Name:.....

Place:.....

CERTIFICATE

This thesis report is submitted by **NAME OF THE STUDENT, ENROLLEMENT No-**, student of 5th Year School of Architecture & Design, K.R. Mangalam University, Gurgaon, Session: XX-XX.

Originality of information and opinion expressed in this thesis are of the Author and do not necessarily reflect those of the Guide or the Coordinator or the Institute.

Date:.....

Place:.....

Student: **NAME OF STUDENT**

Signature of Thesis Coordinator's:

Signature of Guide:

:

School of Architecture & Design,
K.R. Mangalam University,
Gurugram

ACKNOWLEDGEMENT

XXXXXX

4.3

4.4

Chapter 05 : URBAN INTERVENTION5.1

TABLE OF CONTENTS

Acknowledgement

.....i

Abstract.....

.....ii

List of

Tables.....

.....iii

List of

Illustrations/Figures.....

...vii

5.2

Chapter 01 : INTRODUCTION

5.3

1.1

5.4

1.2

ANNEXURE I : Design Sheets

1.3

ANNEXURE II : XXX

1.4

Bibliography

Chapter 02 :

2.1

2.2

2.3

2.4

Chapter 03 :

3.1

3.2

3.3

3.4

Chapter 04 :

4.1

4.2

LIST OF TABLES

Table 2.1 : xxx	14
Table 2.4a : yyy.....	26
Table 3.4b : zzz	27

LIST OF FIGURES

Figure 1.1 : xxx	14
Figure 2.3c : yyy.....	26
Figure 5.1b : zzz	27

CHAPTER 01 : XXX

1.1 Introduction - XXX

khfkwehfkjdvncierhvkjrbvkjenvkjevkJeb



Figure 1 : hdkehwhfwhfvv [Source : xxxx/Author]

BIBLIOGRAPHY

Please follow Harvard Referencing Style –
See Attachment

It shall follow the alphabetical order

ADAMS A. (2008), *The Pinnacle@Duxton*,
[online] Available at :
<http://www.skyscrapercity.com/showthread.php?t=161688&page=31> (Accessed on
25.07.2011)

AR (1985), *Living Together Housing*,
Architecture review, April 1985 pgs 63-71

BARTON H., GRANT M. & GUISE R.
(2003), *Shaping Neighbourhoods :
For Local Health and Global Sustainability*,
Routledge, Oxon & N

