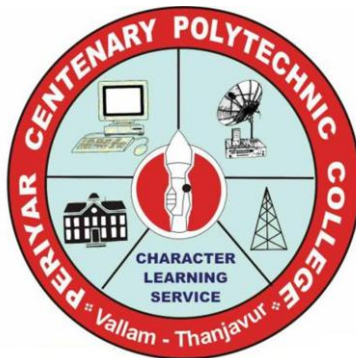


PERIYAR CENTENARY POLYTECHNIC COLLEGE

PERIYAR NAGAR, VALLAM – 613 403 – THANJAVUR

AUTONOMOUS INSTITUTION

NBA Accredited (ECE, EEE, MECH & COMPUTER – upto 2026)



DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP(SW)

SYLLABUS

AAE/23/00

SEMESTER SYSTEM

E - SCHEME

IMPLEMENTED FROM 2023 – 2024

**PERIYAR CENTENARY POLYTECHNIC COLLEGE
VALLAM – 613 403, THANJAVUR**

DIPLOMA IN ARCHITECTURAL ASSISTANTSHIP (SW)

Programme Advisory Committee (PAC)

Syllabus Revision

Chairperson

Dr.A.HEMALATHA,
Principal,
Periyar Centenary Polytechnic College,
Periyar Nagar, Vallam – 613 403
Thanjavur DT

Convener

Mr.K.B.Velliyangiri,
Head of the Department of Architecture.,
Periyar Centenary Polytechnic College,
Periyar Nagar, Vallam – 613 403
Thanjavur DT

Members

1	Ar. N.Subash chandran,B.Arch Rural Architect, B-33, Golden square, 11 th cross, Thillai Nagar, Trichy-62018.	4	Dr.C.V.Subramanian Professor& Dean /Architecture PeriyarManiammai Institute of Science and Technology Vallam, Thanjavur.
2	Ar.J.Paul Robert.,B.Arch., Delta planners, 261,7 th cross, Arulanandanagar, Thanjavur-613 001.	5	Ar.M.A.Karthick Lecturer architecture, DR.DharmambalGovt,polytechnic college for women Taramani, Chennai.
3	Ar.Ulaganambi Frames Architecture No.10 Karthikeyan street, Yagappa Nagar, Pudukkotai road, Thanjavur-613007.	6	Ar.T.Vignesh,D.Arch, B.Arch, M.Arch, A.I.I.A DivishaArchitcets No-9, Needanmangalam road Kumbakonam.

CONTENTS

S.No	Particulars	Page No
1.	VISION, MISSION, PROGRAM OUTCOMES (POs) OUTCOME BASED EDUCATION(OBE)	1-3
2.	RULES AND REGULATIONS	4-25
3.	CURRICULUM OUTLINE & SCHEME OF EXAMINATIONS	26-36
4.	DETAILED SYLLABUS - III SEMESTER	37-97
5.	DETAILED SYLLABUS - IV SEMESTER	98-182
6.	DETAILED SYLLABUS - V SEMESTER	183-245
7.	DETAILED SYLLABUS - VI SEMESTER	246-364
8.	DETAILED SYLLABUS - VII SEMESTER	365-378

PERIYAR CENTENARY POLYTECHNIC COLLEGE

Periyar Nagar, Vallam – 613 403, Thanjavur

AUTONOMOUS INSTITUTION

NBA Accredited (ECE, EEE, MECH & COMPUTER – upto 2026)

VISION

Periyar Centenary Polytechnic College aspires to be recognized as one of the leaders in imparting quality technical education and strives to prepare rural students with excellent technical and life skills for the benefit of the stakeholders and society at large.

MISSION

- M1:** To impart quality technical education to the students and equip them with knowledge, skills and attitudes that will lead to successful employment in industry/business, entrepreneurship and higher education.
- M2:** To provide conducive learning environment and adopt well structured teaching – learning practices to make the students technically competent.
- M3:** To strengthen the collaboration with industry and community for career development, placement and extension services.
- M4:** To develop the personality of the students and identify themselves as good individuals, professionals and responsible citizens with ethical values.
- M5:** To inculcate lifelong learning skills to face challenges with innovations.

PROGRAM OUTCOMES (POs)

- PO1: Basic and Discipline specific knowledge:** Apply knowledge of basic mathematics, science and engineering fundamentals and engineering specialization to solve the engineering problems.
- PO2: Problem analysis:** Identify and analyse well-defined engineering problems using codified standard methods.
- PO3: Design/ development of solutions:** Design solutions for well-defined technical problems and assist with the design of systems components or processes to meet specified needs.
- PO4: Engineering Tools, Experimentation and Testing:** Apply modern engineering tools and appropriate technique to conduct standard tests and measurements.
- PO5: Engineering practices for society, sustainability and environment:** Apply appropriate technology in context of society, sustainability, environment and ethical practices.
- PO6: Project Management:** Use engineering management principles individually, as a team member or a leader to manage projects and effectively communicate about well-defined engineering activities.
- PO7: Life-long learning:** Ability to analyze individual needs and engage in updating in the context of technological changes.

DEPARTMENT OF ARCHITECTURAL ASSISTANTSHIP (SW)

VISION

Excellence in providing architectural education and infuse a motivational spirit in students for innovative designs, creations and entrepreneurship.

MISSION

M1: To educate and train students in architecture with updated curriculum and prepare them for successful employment in industry or self-

enterprise by providing best teaching and learning practice.

M2: To provide a conducive, creative and enjoyable ambience to transform students with high ethical values, professional quality and leadership skills to face any real time problem.

M3: To develop the technical skills of the students by providing effective training in computer applications in architectural drafting and designs and practical training in architect's firm.

M4: To inculcate lifelong learning skills to face challenges with innovations.

PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO1: Our Diploma graduates will have the ability to apply technical knowledge of the theories and practices in the field of Architecture.

PEO2: Our Diploma graduates will be able to apply real practical Knowledge and manage the construction sites as supervisor and to become an entrepreneur in architectural field or pursue higher education.

PEO3: Our Diploma graduates will be able to apply strong interpersonal ability, communication skills, leadership qualities to express creative and independent ideas with high regard to professionalism and ethical behavior.

PROGRAMME SPECIFIC OUTCOMES (PSOs)

PSO1: Understand elements of Architecture, basics of interdisciplinary courses and apply basic principles in Architecture field.

PSO2: Understand and apply the principles of building materials, structural design, mechanics of structures, surveying, environmental engineering, building services, estimating & costing construction techniques and management.

PSO3: Create architectural plan, drafting, renderings, and designs and apply in computer aided design to develop 2D and 3D drawings and models.

OUTCOME BASED EDUCATION (OBE)

Our institution is practicing Outcome Based Education (OBE) which is a student centered instruction model that focuses on measuring student performance throughout outcomes. Outcomes include knowledge, skills and attitudes.

In the OBE model, the required knowledge and skill sets for a particular diploma programme is predetermined and the students are evaluated for all the required parameters (Outcomes) during the course of the program.

The OBE model measures the progress of the graduate in four parameters, which are

- Program Educational Objectives (PEO)
- Program Specific Outcomes (PSO)
- Program Outcomes (PO)
- Course Outcomes (CO)

Program Educational Objectives (PEOs) are broad statements that describe the career and professional accomplishments that the program is preparing the graduates to achieve. PEO's are measured 4-5 years after graduation.

Program Specific Outcomes (PSOs) are the statements that describe what the graduates of specific engineering programs should be able to do.

Program Outcomes (POs) are narrower statements that describe what students are expected to know and be able to do by the time of graduation.

Course Outcomes (COs) are the measurable parameters which evaluate each student's performance for each course that the student undertakes in every semester. The teaching learning process and assessment are being carried out in accordance with the revised Bloom's Taxonomy. According to revised Bloom's Taxonomy, the levels are in cognitive domain areas follows:

Level	Descriptor	Level of attainment
1	Remembering	Recalling from memory of previously learned material
2	Understanding	Explaining ideas or concepts
3	Applying	Using information in another familiar situation
4	Analyzing	Breaking information into part to explore understandings and relationships
5	Evaluating	Justifying a decision or course of action
6	Creating	Generating new ideas, products or new ways of viewing things.

DIPLOMA PROGRAMME IN ENGINEERING / TECHNOLOGY

(Implemented from 2023 -2024)

E SCHEME

RULES AND REGULATIONS

Objective:

To retain and further strengthen the quality of the human capital produced by our higher technical education at the diploma level as they play a major force behind the state's social, cultural, and economic pre-eminence.

To seed & nurture agents of change & transformation for the digital future with enduring skills and capabilities by cultivating technological capabilities through a skill-centred approach.

Admission:

Candidates seeking admission to the first semester of the Diploma program:

Should have passed the SSLC Examinations prescribed by the Government of Tamil Nadu or any examination of any other board or authority recognized by the Board of Secondary Education as equivalent thereto with eligibility for Higher Secondary Education in Tamil Nadu.

Lateral entry admission:

The candidates who possess a pass in the HSC [Academic] or equivalent prescribed in the Higher Secondary Schools in Tamil Nadu affiliated to the Tamil Nadu Higher Secondary Board, with a pass in at least three of the following subjects: Physics / Chemistry / Mathematics / Computer Science / Electronics / Information Technology / Biology / Informatics Practices / Biotechnology / Technical Vocational Subjects / Agriculture / Engineering Graphics / Business Studies / Entrepreneurship are eligible to apply for Lateral entry admission to the third semester of Diploma programs, as per the rules fixed by the Government of Tamil Nadu. (or) The candidates who possess a pass in 2-year ITI with appropriate grade or equivalent examination.

There is no age limit prescribed for admissions to Diploma programs.

The medium of instruction is English for all courses, examinations, seminar presentations and project work reports, except for the programs offered in Tamil Medium.

Structure of the Program :

The Redesigning and revamp of the Diploma program in the State of Tamil Nadu will focus on improving the employability and entrepreneurship outcomes of the campuses through skill-centric and industry allied curriculum and syllabi. The following structure is being proposed for the new curriculum.

Pathways for Progressive Learning Experience

The program offers 4 different pathways for progressive learning. Entrepreneurs, Higher Education, Technocrats and Technologists have different pathways from which the students will pick one of these pathways that they find fascinating and work to ameliorate their knowledge base over the desired pathway.

There are courses offered for the specific pathways in their final semesters that will aid them to choose their career in their specific pathways. Pathway direction for the students can be assisted by faculty mentors from time to time.

- **Entrepreneur:**

Students who aspire to transform opportunity into reality, and create social and economic value for themselves and for others.

- **Higher Education:**

Students with aspirations of pursuing higher education to acquire higher-order skills and competencies in the domain of interest.

- **Technocrats:**

Students who aspire to acquire mastery of technical tools and methods to manage people who manage the processes.

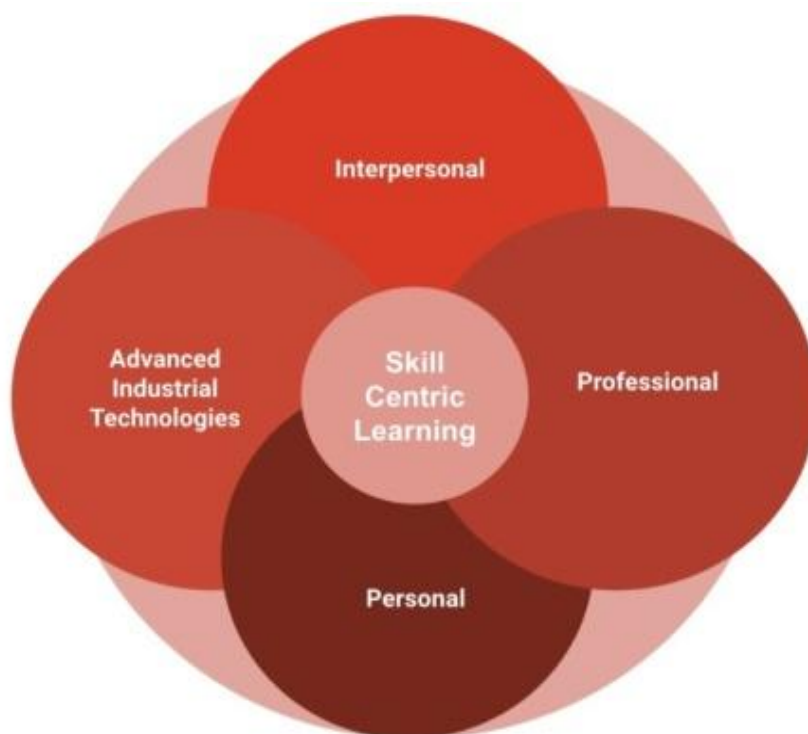
- **Technologists:**

Students who aspire to gain leadership in a particular discipline / technology to evolve into Problem Solvers & Innovators.

Various Dimensions for Transformation:

Today's world is rapidly changing and increasingly interconnected, and the future talent pipeline to be sourced from the campuses needs to adapt to changes that will keep accelerating in the future. The new diploma program focuses on equipping learners with skills that will enable them to cope with the foreseeable social and economic changes and manage often unpredictable realities. The various dimensions of transformation are designed to nurture skills towards holistic human development. Such skills are acquired not only on formal courses but in a variety of contexts throughout the academic curriculum.

Four broad dimensions of skills to ensure holistic human development: (1) Personal, (2) Professional, (3) Interpersonal and (4) Advanced Industrial Technologies skills and competencies.



Integrated Curriculum :

An integrated curriculum is based on learning experiences that lead to the acquisition of disciplinary knowledge and its application in a professional environment interwoven with the teaching of personal, interpersonal, and professional skills, and ways in which the integration of emerging technological skills and multidisciplinary connections are made.

Course Levels:

A course is a component (a paper/subject) of a program. All the courses need not carry the same weightage. The course should have defined Course Objectives and Course Outcomes. A course may be designed to involve lectures/tutorials/laboratory work/project work/Internships/seminars or a combination of these, to effectively meet the teaching and learning needs and the credits may be assigned suitably.

The programs consist of various levels of courses, structured as (F) Foundation, (C) Concentration and the (S) Specialization courses for a greater understanding of the core concepts of the fundamentals in the initial year of learning and thereby moving towards the specialization areas by choice.

- **Foundation (F) | Year I:** Foundation courses build strong fundamental requirements across mathematics, statistics, science, engineering domain, advanced technologies, social sciences and humanities.
- **Concentration (Cn) | Year II:** Concentration courses shall deliver domain-specific knowledge and technological skills. They are offered as core and electives to provide the requisite mandatory working knowledge of the chosen domain.

- **Specialisation (S) | Year III:** Specialization courses are focused on a particular area of study leading to a specific pathway. Some of the courses can also be beyond the program, leading to skills and competencies in emerging technology domains.

Course Types:

Every diploma program shall have a curriculum with syllabi comprising Theory, Practicum and Practical courses with well-defined Program Outcomes (POs) as per the Outcome Based Education (OBE) model. The content of each course is designed based on the intended Course Outcomes (COs). Every program shall have a distinct curriculum with syllabi consisting of courses broadly categorized under:

- **Core(C)/Elective (E)**–Core / Elective courses are offered to students of a particular program to gain basic and specialized knowledge/skills in a selected field. Core courses are mandatory to complete the program and shall not be exempted or provided with credit equivalence. Elective Courses may be grouped into different domains/streams/specialisations to enable the students to have at least 3 to 5 options. At least 20 students need to express their willingness, for the case of an elective course, to be offered.
- **Practicum (P)**–Integrated course taught in a hands-on learning environment. This may be offered wherever theoretical concepts are to be learned simultaneously with relevant practical sessions. Such courses shall be offered only if sufficient laboratory facilities are available to conduct such courses, and both laboratory and theory components shall be considered for continuous assessment. Final evaluation based on the proportion of the credit awarded for the respective component.
- **Lab (L)** - Practical Courses taught in a designated lab. This may be offered when conceptual learning has to be augmented by practical experiments and also to bring focus on acquiring skills through doing. Such courses shall be offered only if sufficient laboratory facilities are available to conduct such courses.
- **Field Study (FS)**–Offered as a special / curriculum-enriching component to understand certain practical issues/work practices / hands-on training/immersion project/market survey. Field Study, if it forms a part of the course, then credit(s) shall be assigned accordingly, otherwise, such course(s) may be specified in the Grade Sheet without grades.
- **Certification (Cer)**–Industry-driven course shall be offered, jointly with an industry that would result in learning the emerging trends / employment potential topics / solving real-time problems. The contents of the course shall be jointly designed by an industry expert and a suitable faculty member, with relevant assessment and evaluation. Hybrid/Online learning options shall be available. Students are permitted to complete these courses through MOOCs / Professional Certification and credit equivalence (Program Elective or Open Elective), to a maximum of 6 credits.
- **In-House Projects(InP)**–Capstone Project shall be offered once a student completes >95% of the core courses related to the Diploma program. The Capstone Project is expected to involve concepts from fundamentals to recent developments and may be restricted to one

domain or multidomains / multi-disciplines. Capstone Project shall be offered only after completing all the fundamental courses and offered during the final semester. It shall also focus on Environment, Society, Sustainability, Entrepreneurship and Project Management. In the case of a multidisciplinary project, a suitable co-supervisor shall be opted for the students from the relevant Department for successful completion. Capstone Project may be offered in phases, i.e. Phase I and Phase II (single topic or two different topics). Students are encouraged to submit the softcopy of the complete report for evaluation and abstract in the printed form during the final presentation.

- **Fellowship (Fs)**–Up to 6 Months for professional and/or academic development offered by an external organisation identified and nominated by DoTE in India or abroad. Students shall be shortlisted for the same under sponsorship/scholarship by competent authorities and approved by the Head of the Institution.
- **Boot Camp (B)**–2-to-5-day training camps for imparting knowledge and skills in emerging areas. It may be offered jointly by a team of faculty members / external experts with course content that includes interdisciplinary topics from different domains, thereby enhancing the Professional Knowledge & Skills of the students. However, such courses shall not have any significant repetition of other courses offered in that particular diploma program. If a student fails to complete such a course on the first attempt or lacks attendance requirements, they may opt for a different course in the subsequent semester and meet the minimum credit requirements of the program or may redo the same course whenever offered.
- **Hackathon (H)** - 3 to 6 days of problem-solving and building a solution for real-world problems in an intensive/accelerated manner. It may be considered as one of the course types in situations where multiple solutions are expected to a problem or multiple problems are expected to be solved, in a particular industry/research laboratory. Such a course shall be essentially a Practicum and may be offered in a workshop mode. Credit allocation, Assessment and Evaluation shall be based on the respective syllabi designed for the same.
- **Internship (I)**–Internship is offered as a credit course with the Industry/Research Laboratories/ other Universities in India or abroad. Credit allocation, Assessment and Evaluation shall be based on the procedures given. Every student is encouraged to gain Credits through an Internship.
- **Audit Courses**are optionally registered by a student to understand certain basic/advanced concepts in his / her own discipline or other disciplines offered by the college. In this case, if a candidate fails in an Audit Course, it is not mandatory to repeat that course and these courses shall not be considered for eligibility for awarding the Diploma. Grades shall be awarded as “Completed”.

Definition of Credit

Credit is a kind of weightage given to the contact periods* to teach the prescribed syllabus, which is in a modular form. The credit distribution for theory, laboratory and project courses are mentioned in the table below.

Theory(L)-15periods	1credit
Tutorial(T)-15periods	1credit
Practical(P)–30periods	1credit
Internship(I)-30periods	1credit
Project(J)-30periods	1credit

* 1 period = 50 minutes of class

Curriculum Structure

Every program shall have a distinct curriculum with syllabi consisting of courses broadly categorized under Basic Sciences, Basic Engineering, Professional Core, Program Electives, Open Electives, and Certification Courses. Credit distribution for various categories of the courses will follow the guidelines given below, subject to minor variations, as may be suggested by the respective Boards of Studies.

Category	Credit Range
Humanities and social sciences	11
Basic Science Courses	17-20
Engineering Sciences	6-13
Program core	40-51
Program Elective	9-12
Open elective	10
Industrial Training / Project work	14
Audit Course	0
Integrated Learning Experiences	
Induction program	Non-Credits Course
I & E / Club Activity / Community Initiatives	Non-Credits Course
Shop Floor Immersion	Non-Credits Course
Health & Wellness	Non-Credits Course
Student-Led Initiative	Non-Credits Course
Special Interest Groups (Placement Training)	Non-Credits Course
Emerging technology seminars	Non-Credits Course

Each program will consist of Basic Science (BS), Engineering Sciences (ES), Professional Core (PC), Program Electives (PE), Open Electives (OE), Audit Courses and In-House Project/Internships/Fellowships.

1. **Basic Sciences:** This course is common to all programs to develop fundamental knowledge of science and mathematics; it also enhances the reasoning and analytical skills amongst students.
2. **Engineering Sciences:** Engineering Science shall create awareness of different specializations of engineering studies. The goal of these courses is to create engineers of tomorrow, who possess the knowledge of all disciplines and can apply their

interdisciplinary knowledge in every aspect. It could be any branch of engineering - Civil, Computer Science and Engineering, Electrical, Mechanical, etc.

3. **Program Core:** This includes core courses designed in the program, which are major courses of the discipline, are required to attain desired outcomes and to ignite critical thinking skills amongst students.
4. **Program Elective:** This includes elective courses that can be chosen from a pool of courses which may be very specific or specialized or advanced or supportive to the program of study or nurtures the candidate's proficiency/skill. This is called a program elective course.
5. **Open Electives:** An elective course chosen generally from another discipline/ subject, to seek interdisciplinary exposure is called an open elective. While choosing the electives, students shall ensure that they do not opt for courses with syllabus contents which are similar to that of their departmental core/elective courses.
6. **Audit Courses:** An audit course is one in which the student attends classes, does the necessary assignments and takes exams. The Institute encourages students towards extra learning by auditing for the additional number of courses. The results of audit courses shall not be considered for the prescribed "carry over courses" limit.
7. **Humanities and Social Science:** Basic courses offered across language, communication and social science subjects, including any management skills and shall be categorized as Humanities and Social science.
8. **In-House Project/Internships/Fellowships:** Every student must do one major project in the Final year of their program. Students can do their major project in Industry or R&D Lab or in-house or a combination of any two or a fellowship in a reputed organization.

Outcome-Based Education

Outcome-based education aims to create a clear expectation of results that students must achieve. Here, the outcome includes skills, knowledge and attitude. Outcomes inform both the way students are evaluated on a course and the way a course will be organised. Effective learning outcomes are student-centred, measurable, concise, meaningful, achievable and outcome-based (rather than task-based). To identify achievable learning goals and develop plans to meet them, revised Bloom's Taxonomy framework is introduced to allow educators to assess learning on an ongoing basis, encouraging students to reflect on their progress.

All the programs offered should adopt Outcome Based Education (OBE) in order to enhance the opportunities for the students with respect to their career track (through a student-centric approach). The Program Outcomes (POs) of the respective program of study are achieved through the Course Outcomes (COs). Necessary remedial actions are taken at regular intervals to ensure the proper attainment of outcomes by the students. The evaluation procedures outlined are to be followed by the departments before arriving at the data for the Outcome attainment analysis.

1. OBE is an approach to education in which the decisions about the curriculum instruction and assessment are driven by the learning outcomes that the students should display at the end of a program or course.

2. The vision and mission statements are the guiding forces behind an institute / department. The vision statement provides insight into what the department focuses to achieve or become in the future. The mission statement communicates the process involved in achieving the vision. An effective vision statement should be concise, unambiguous, futuristic, and realistic. aspirational, and inspirational. Furthermore, it shouldn't be generic but rather focus on outcomes specific to the department. A good mission statement should focus on the ways to achieve the vision of the department. It should be brief, clear, informative, simple, and direct.
3. Graduate Attributes (GAs) represent the standard abilities to be looked for in a graduate of any diploma program. They form the Program Outcomes (POs) that reflect the skills, knowledge, and abilities of diploma graduates regardless of the field of study. At the same time, POs are necessarily independent of disciplinary knowledge; rather, these qualities may be developed in various disciplinary contexts. POs are composite statements made-up of multiple aspects relevant to a broader outcome like domain knowledge, design, analysis, etc. They also ensure the holistic development of the students by covering aspects like communication, ethics, project management, etc.,
4. Assessments are designed to measure the POs, and POs give useful guidance at the program level for the curriculum design, delivery, and assessment of student learning. However, they represent fairly high-level generic goals that are not directly measurable. Real observability and measurability of the POs at the course level are very difficult. To connect high-level learning outcomes (POs) with course content, course outcomes and assessments are designed, they are necessary to bring further clarity and specificity to the program outcomes.
5. For each PO, the skills and competencies implied generally require a different assessment methodology. This helps us to create a shared understanding of the competencies that students want to achieve.
6. Course Outcomes (COs) are specific, measurable statements that help the learners to understand the capabilities to be attained by them at the end of the course. COs should highlight what the learner can attain by studying the course and undergoing the evaluation of outcomes prepared for the same. It includes the knowledge to be gained, skills to be acquired and the application of the same towards solving problems specific to the context. The topics for the course should be decided based on the course outcomes in such a way that the specific topics alone do not map to the specific course outcomes.
7. Revised Bloom's Taxonomy for Assessment Design: It attempts to divide learning into three types of domains (cognitive. affective, and behavioural) and then defines the level of performance for each domain. Conscious efforts to map the curriculum and assessment to these levels can help the programs to aim for higher-level abilities which go beyond remembering or understanding, and require application, and analysis, evaluation or creation.

8. CO-PO course articulation matrix should indicate the correlation between the CO and PO based on the extent to which the CO contributes to the PO. This is mapped at three levels 1, 2 or 3 representing low, medium and high respectively. This also ensures that every PO is covered across the courses offered as a part of the program. The matrix will be adopted for all the courses run by the department.
9. The attainment of COs of any course can be assessed from the performance of the students through continuous and final assessments. The goal of continuous assessment is to understand/realise the critical information about student comprehension throughout the learning process and provides an opportunity for the facilitator to improve their pedagogical approach and for students to improve learning outcomes. The goal of the final assessment is to evaluate student learning outcomes at the end of the course instruction. According to the new regulation, 40% weightage is for the continuous assessment, and 60% weightage is for the final assessment.
10. The POs assessment should be carried out by both direct and indirect assessment. The assessment can be estimated by giving 80% weightage to direct assessment and 20% weightage to indirect assessment. Direct assessment is purely based on COs attainment through the course Assessment Method, and indirect assessment is through the feedback taken from the relevant stakeholders of the system. Indirect assessment can be done in the form of a graduate exit survey where the student is required to answer a questionnaire that reflects their satisfaction with respect to the attainment of POs. The questionnaire should be carefully designed so as to not have the POs themselves as direct questions.
11. Each PO attainment corresponding to a specific course can be determined from the attainment values obtained for each course outcome related to that PO and the CO-PO mapping values. The threshold value of 60%, shall be set for the POs and the same can be modified with due approval of the Authorities.
12. The gap identified in the attainment of the COs and POs can be addressed by organising talks from the industry, bridge courses, organising workshops, arranging field visits (industrial visits) with respect to the course, improving the student performance under the innovative teaching-learning process of the institution, etc.,

Academic and Curriculum Flexibility

Academic and curriculum flexibility enhance a student's learning experience by providing various options such as adjusting the timeframe of courses, horizontal mobility, interdisciplinary opportunities, and other benefits through curricular transactions. The types of Academic and curriculum flexibilities are listed below.

1. Break of Study
2. Course Add / Drop
3. Course Withdrawal
4. Credit Equivalence
5. Credit Transfer

6. Examination Withdrawal
7. Fast-Track Option
8. Flexi-Credit System
9. Bridge Course

Break of Study

If a student intends to take a break / temporarily discontinue the program in the middle of a semester/year, during the period of study, for valid reasons (such as Internships, accident or hospitalization due to prolonged ill health) and wishes to re-join the program in the next academic year, student shall intimate stating the reasons.

Break of study is permitted only once during the entire period of the degree program for a maximum period of one year. The student is permitted to rejoin the program after the break and shall be governed by the rules and regulations in force, at the time of rejoining. The break shall be notified in the grade sheet. If a student is detained for want (shortage) of attendance or disciplinary issues, the period spent in that semester shall not be considered a permitted Break of Study.

Course Add / Drop

Subject to resource availability, a student has the option to add additional courses within a week after the regular semester begins. Furthermore, a student can drop registered courses before completing the first Continuous Assessment (CA) test in a semester, limited to a maximum of 6 credits. These dropped courses will not be considered as arrears, but the student will need to retake them when they are offered by the institution. In order to carry out these actions, students must obtain permission from the head of the institution.

Credit Equivalence

It is an option that can be exercised by a student under the following circumstances –

- (i) credits earned through Extra and Co-curricular Activities (only against program elective / open elective – Global)
- (ii) credits earned through online courses (only against Open Electives - Technical and Global and program electives)
- (iii) credits accumulated through Capsule courses, One-Credit courses Such courses and credits earned shall be presented in the Academic Board.

Credit Transfer

Credits earned by a student through Credit Equivalence (as said above) and credits earned by attending and completing the courses successfully, offered by other approved Universities / Institutions / Professional Bodies (only against Technical and Global Open Electives and program electives) shall be considered as “Transferred Credits (specified in the Grade Sheet)” and considered for the calculation of CGPA.

Examination Withdrawal

A student may be permitted to withdraw from appearing for the end semester examination in any course or courses for valid reasons (medically unfit / unexpected family situations / sports approved by the Physical Director / HOD/Principal).

This privilege can be availed ONLY ONCE during the entire program. Valid documents, for medically unfit / unexpected family situations, shall be submitted by the student within seven days before the commencement of the examination in that course or courses and also recommended by the Head of the Department, approved by the Head of the Institution.

Special cases under extraordinary conditions will be considered on the merit of the case if any student applies for withdrawal, notwithstanding the requirement of mandatory seven days' notice.

Those students who withdraw from any course or courses during the program are eligible for the award of first class and first class with distinction as per the requirement in this regard.

Withdrawal is permitted for the end semester examinations in the final semester, only if the period of study, the student concerned, does not exceed 1 semester after the regular period of 3 years so that his eligibility for distinction is considered.

The final approval for withdrawal will depend on the merit of the case and will be decided by the Head of the Institution.

Fast-Track

This option enables a student to complete the minimum credit requirements of a program, to enable

- (i) his / her own entrepreneurial venture (start-up),
- (ii) an internship in industry/research laboratories / fellowship.

This option is currently available for students to complete the two elective papers offered in Semester 6 in advance [Recommended to be completed in Semester 4 or 5] to avail the last semester for internship/fellowship/do his own start-up/enterprise/project outside the campus. However, such an option shall not be exercised to pursue higher education elsewhere. The duration of the study shall remain the same as per the prescribed syllabi for the fast-track option also.

Flexi-Credit System

It offers a student to earn additional credits than that specified (minimum credits) to a program for which student has enrolled. Such additional credits earned shall be mentioned in the Grade Sheet, as 'Additional Credits Earned'. Credits earned through Flexi-Credit System shall not be considered for the calculation of SGPA or CGPA.

Bridge Course

This is specifically designed for Lateral Entry (LE) students who join the Diploma Program in 2nd year (3rd Semester). This course will be a 40 period in which the faculty gives the gist of

important topics that the LE students may have missed in the first year of the program specific to the department concerned.

Integrated Learning Experience

Integrated learning experiences encompass activities that foster the acquisition of disciplinary knowledge, personal and interpersonal skills, and technological proficiency. These experiences promote active engagement in meaningful real-life situations and establish connections between different curricula, cocurricular activities, and extracurricular pursuits across diverse disciplines. Integrated learning experiences are concatenated in the academic curriculum for each semester enabling the students to learn, adapt and transform through experiential learning pedagogy.

This approach enriches the curriculum by incorporating dynamic and up-to-date cocurricular courses and activities that may not be directly aligned with the students' program of study. It prioritizes the holistic development of students, fostering their growth and well-roundedness.

1. Innovation & Entrepreneurship
2. Peer 2 Peer Learning
3. Growth Lab
4. Shop Floor Immersion
5. Health & Wellness
6. Induction Program
7. Special Interest Groups
8. Club Activity
9. Community Initiatives
10. Emerging Tech Seminars
11. Student Led Initiative
12. Industry-Specific Training

Innovation Track

They are offered to the student, to bring awareness on start-up / entrepreneurial ventures through a series of courses/activities. Based on the inputs gained, students can select their electives, specialisation, capstone project and deferred placement option.

Peer to Peer Learning

PTP learning involves interactions between students from senior classes, leading to valuable additions and deepening the understanding of certain concepts. This may happen as a part of a scheduled time-table or after instructional hours in a day, by Peers (from senior classes), leading to value addition, enriching the understanding of certain concepts and implementing practically (developing models, prototypes, proofsof-concept) for learning satisfaction, participating in competitions / competitive examinations. These efforts are expected to improve

teamwork, communication, understanding of societal needs, project management and life-long learning activities.

Growth Lab

Growth labs play an integral role to stimulate and develop a student's personality & skills in various fields of life. It also teaches about a growth mindset to tackle real-world problems and life challenges. It brings self-confidence and empowerment to transform the inter-personality of the student. The process brings the progression to achieve higher goals in life.

Shop floor immersion

This introduces new ideas, inspires participants to further explore them on their own or may illustrate and promote actual process practice through seminars, workshops, Industrial Visits etc that results in learning hands-on skills as it gives the students an opportunity to try out new methods and fall in a safe environment.

Health & Wellness

This aims to teach students about various aspects of health and fitness, including exercise, nutrition, yoga, mental health, and substance awareness.

Induction Program

It shall be organised to all the students, admitted into first year, to offer the course on Universal Human Value, awareness sessions on campus facilities, academic regulation and curriculum, highlight the culture, values and responsibilities of an Engineer in the Society and the Nation as a whole, besides Institutional infrastructure and facilities and student support systems. Awareness of domain-specific requirements to be organised in the second year of induction.

Special Interest Groups

The training is especially based on the placements on campus. Concepts required for aptitude tests, group discussions, resume building, personal interviews, industry-specific orientation and Business Case Competition are taught to the students.

Club Activity

A small community that attracts people who share the same interests such as music, arts, or sports working on a common goal to develop a sense of unity and teamwork, learning how to work with others in reaching the same goals.

Community Initiatives

Community Initiatives involve activities that aim to define values, cultivate empathy, foster social skills, and enhance students' understanding of their community. Through these initiatives, students have the opportunity to build meaningful relationships, gain insights into different

perspectives, and engage with diverse cultures. This engagement enables the development of crucial interpersonal skills.

Emerging Tech Seminars

A technical presentation made by the students & the cross-functional Members of the Faculty to showcase the technology adopted in the industry. This collaborative teaching-learning session between the student & the faculty results in a better understanding of the use of technology in various applications.

Student-Led Initiative

A student-led session will help students to acquire and share knowledge on emerging industrial technologies that will comprehend & introduce the emerging technology to the students. This includes student-led Tech talk series & other initiatives.

Industry - Specific Training

Gaining information about the industry's way of working and understanding the process. This enables one to understand the various non-technical skills & competencies required for the transformation from a student to a professional.

Duration of the Program

- A student is ordinarily expected to complete the Diploma program in 6 semesters (for SSLC students) and four semesters (for Lateral Entry students) but in any case, not more than 12 Semesters for SSLC (or equivalent) students and not more than 10 semesters for Lateral Entry students.
- Each semester shall normally consist of 15 weeks with periods of 50 minutes each. The Head of the Institution shall ensure that every faculty imparts instruction as per the number of periods specified in the syllabus and that the faculty teaches the full content of the specified syllabus for the course being taught.
- The Head of the Institution may conduct additional classes for improvement, special coaching, conduct model tests etc., over and above the specified periods.
- The End Semester Examination will normally follow immediately after the last working day of the semester as per the academic schedule prescribed from time to time.
- The total period for completion of the program from the commencement of the first semester to which the student was admitted shall not exceed the maximum period specified irrespective of the period of break of study in order that student may be eligible for the award of the diploma. The minimum and maximum period of study shall be,

Diploma Programme	Min. Period	Max. Period
Full Time	3 Years	6 Years
Full Time [Lateral Entry]	2 Years	5 Years
Sandwich	3.5 Years	6.5 Years
Part Time	4 Years	7 Years

Attendance Requirements

A student who has fulfilled the following conditions shall be deemed to have satisfied the requirements for completion of a semester.

- Ideally every student is expected to attend all classes of all the courses and secure 100% attendance.
- However, in order to make provision for certain unavoidable reasons such as medical / participation in sports, the student is expected to attend at least 75% of the classes.
- Therefore, the student shall secure not less than 75% (after rounding off to the nearest integer) of overall attendance for each semester.
- However, a student who secures overall attendance between 65% and 74% in the current semester due to medical reasons (prolonged hospitalization / accident / specific illness) / participation in sports events may be permitted to appear for the current semester examinations, subject to the condition that the student shall submit the medical certificate / sports participation certificate attested by the Head of the Institution.
- Students who secure less than 65% overall attendance shall not be permitted to write the end semester examination and not permitted to move to the next semester. They are required to repeat the incomplete semester in the next academic year, as per the norms prescribed.
- Candidates who have earned more than 50% attendance but fall short of the basic requirement of 65% attendance (in all subjects of the current semester put together) shall be permitted to proceed to the next semester, only one time during the course of study by considering all the papers in that current semester as absent and to complete the program of study. For such candidates by default, the classification of class shall be Second class on successful passing of course.

Class Committee

Every class shall have a class committee consisting of faculty of the class concerned, student representatives and a chairperson, who is not teaching the class. It is like the 'Quality Circle' (more commonly used in industries) with the overall goal of improving the teaching learning process. The functions of the class committee include:

- Solving problems experienced by students in the classroom and in the laboratories. Clarifying the regulations of the diploma program and the details of rules therein.
- Informing the student representatives, the academic schedule including the dates of assessments and the syllabus coverage for each assessment.

- Informing the student representatives the details of regulations regarding weightage used for each assessment. In the case of practical courses (laboratory / drawing / project work / seminar etc.) the breakup of marks for each experiment / exercise / module of work, should be clearly discussed in the class committee meeting and informed to the students.
- Analysing the performance of the students of the class after each test and finding the ways and means of solving problems, if any.
- Identifying the slow-learners, if any, and requesting the faculty concerned to provide some additional help or guidance or coaching to such students.
- The class committee for a class under a particular branch is normally constituted by the Head of the Department. However, if the students of different branches are mixed in a class (like the first semester which is generally common to all branches), the class committee is to be constituted by the Head of the Institution.
- The class committee shall be constituted within the first week of each semester. At least 4 student representatives (usually 2 boys and 2 girls) shall be included in the class committee, covering all the elective courses.
- The chairperson of the class committee may invite the class counsellor and the Head of the Department to the class committee meeting.
- The Head of the Institution may participate in any class committee meeting of the institution.
- The chairperson is required to prepare the minutes of every meeting, submit the same to the Head of the Institution within two days of the meeting and arrange to circulate it among the students and faculty concerned. If there are some points in the minutes requiring action by the management, the same shall be brought to the notice of the Head of the Institution.
- The first meeting of the class committee shall be held within one week from the date of commencement of the semester, in order to inform the students about the nature and weightage of assessments within the framework of the regulations.
- Two or three subsequent meetings may be held in a semester at suitable intervals.
- During these meetings the student members representing the entire class, shall meaningfully interact and express the opinions and suggestions of the other students of the class in order to improve the effectiveness of the teaching-learning process.

Course Committee for Common Courses

Each common theory course offered to more than one discipline or group, shall have a “Course Committee” comprising all the faculty teaching the common course with one of them nominated as the course coordinator. The nomination of the course coordinator shall be made by the Head of the Department / Head of the Institution depending upon whether all the faculty teaching the common course belong to a single department or to several departments. The ‘Course Committee’ shall meet in order to arrive at a common scheme of evaluation for the test and shall ensure a uniform evaluation of the tests. Wherever feasible, the Course Committee may also prepare a common question paper for the internal assessment test(s).

Assessment and Examination

Performance in each course of study shall be evaluated for a maximum of 100 marks based on one of the following:

(i) Continuous Assessment [40%]:

- Continuous assessment shall be carried out for 100 marks [summation of multiple CAs] for all types of courses and converted to 40 marks.
- Every subject shall have its own framework for continuous assessment designed by the course committee and approved by the academic board as part of the curriculum. The continuous assessment shall be awarded as per the assessment proposed in respective syllabi.
- For One credit courses and Advanced Skill Certification programs, no end semester examination shall be conducted, and final grade will be awarded based on continuous assessment only for 100 marks.

(ii) End Semester Examination [60%]:

- The End Semester Examination will be conducted for 100 marks and shall be converted to 60 marks in the final results.
- The End Semester Examinations (Theory, Practical, Project) of three hours duration will be conducted.
- For Practicum courses, the end semester examination will be conducted as a theory or a practical or a project examination based on the credits for each component, the decision on the mode of exam could be based on the recommendation by the internal committee duly forwarded and approved by Head of the Institute.
- Every practical exercise/experiment shall be evaluated based on conduct of exercise / experiment and records to be maintained, students shall submit a record work duly completed and signed by faculty in charge and the Head of the Department.
- For the project works, the Department will constitute a three member faculty committee to monitor the progress of the project and conduct reviews regularly.
- If the projects are done in-house, the students must obtain the bonafide certificate for project work from the project guide and Head of the Department, at the end of the semester. Students who have not obtained the bonafide certificate are not permitted to appear for the project Viva Voce examination.
- For the projects carried out in Industry, the students must submit a separate certificate from Industry apart from the regular bonafide certificate mentioned above. For Industry related projects there must be one Mentor / Supervisor from Industry (External), this is in addition to the regular faculty supervision.
- The final examination for project work will be evaluated based on the final report submitted by the project group (of not exceeding four students), and the viva voce by an external examiner.
- The split up of marks for Internal and End Semester Viva Voce can follow the below mentioned rubrics,

Internal Mark Split (40 Marks)			End Semester (60)		
Review 1 (10 Marks)	Review 2 (15 Marks)	Review 3 (15 marks)	Record (20 Marks)	Presentation (20 Marks)	Viva Voce (20 Marks)
Committee: 5 Supervisor: 5	Committee: 7.5 Supervisor: 7.5	Committee: 7.5 Supervisor: 7.5	External: 10 Internal: 5 Supervisor: 5	External: 10 Internal: 5 Supervisor: 5	External: 10 Internal: 5 Supervisor: 5

- Students who are unable to complete the project work at the end of the semester can apply for an extension to the Head of the Department, with the recommendation from the project guide for a period of a maximum of two months. For those students who extend the project work for two months, Viva Voce will be carried out and results will be declared separately. If the project report is not submitted even beyond the extended time, then students are not eligible to appear for Project Viva Voce Examination.
- The performance of each student in the project group would be evaluated in a viva voce examination conducted by a committee consisting of an external examiner and the Department project coordinator as an internal examiner.
- If a student indulges in malpractice in any of the End Semester Examination / Internal Examinations, student will be liable for punitive action as prescribed by the college from time to time.

Passing Requirement for Award of Diploma

A student who secures not less than 40% of total marks prescribed for the course [Internal Assessment + End semester Examinations] with a minimum of 35% of the marks prescribed for the end semester examination, shall be declared to have passed the course and acquired the relevant number of credits. This is applicable for both theory and laboratory courses (including project work).

- (i) No Minimum marks for continuous assessment (Internal). (ii) Minimum Marks to be secured in end semester exam is 35 out of 100, (iii) Those who secure minimum mark (35) in end semester examination need to secure minimum of 19 out of 40 in continuous assessment to achieve overall pass percentage of 40% in that particular subject.

If a student fails to secure a pass in a theory course / laboratory course / elective course (same elective course), the student shall register and appear only for the end semester examination in the subsequent semester. In such cases, the internal assessment marks obtained by the student in the first appearance shall be retained and considered valid for all subsequent attempts till the student secures a pass. However, from the third attempt onwards if a student fails to obtain pass marks (Internal Assessment + End Semester Examination), then the student shall be declared to have passed the examination if the student secures a minimum of 35% marks prescribed for the end semester examinations alone.

If any other Elective course is opted by the student, the previous registration is cancelled and henceforth it is to be considered as a new Elective course. The student has to register and

attend the classes, earn the continuous assessment marks, fulfil the attendance requirements and appear for the end semester examination.

If a student is absent during the viva - voce examination, it would be considered a failure. If a student fails to secure a pass in Project Work, the student shall register for the course again in the subsequent semester and can do Project Work.

The passing requirement for the courses which are assessed only through purely internal assessments, the passing requirement is 50% of the internal assessment (continuous assessment) marks only.

A student can apply for revaluation of the student's semester examination answer paper in a theory course, as per the prescribed fee along with prescribed application to the COE (Controller of Examination) through the Head of the Institution.

The COE will arrange for the revaluation and the results will be intimated to the student. Revaluation is not permitted for laboratory courses and projects.

Award of Grades

The award of letter grades will be decided using relative grading principle. The performance of a student will be reported using letter grades, each carrying certain points as detailed below:

Letter Grade	Grade Points	Marks
O (Outstanding)	10	91-100
A+ (Excellent)	9	81-90
A (Very Good)	8	71-80
B+(Good)	7	61-70
B (Average)	6	51-60
C (Satisfactory)	5	40-50
RA (Re-Appearence)	0	<40
SA (Shortage of Attendance)	0	0
W (Withdrawal)	0	0

A student is deemed to have passed and acquired the corresponding credits in a particular course if the student obtains any one of the following grades: "O", "A+", "A", "B+", "B", "C".

'SA' denotes shortage of attendance and hence prevents students from writing the end semester examinations. 'SA' will appear only in the result sheet.

"RA" denotes that the student has failed to pass in that course. "W" denotes withdrawal from the exam for the particular course. The grades RA and W will figure both in the Grade Sheet as well as in the Result Sheet. In both cases, the student has to appear for the end semester examinations as per the regulations.

If the grade RA is given to Theory Courses/ Laboratory Courses it is not required to satisfy the attendance requirements, but has to appear for the end semester examination and fulfill the norms to earn a pass in the respective courses.

If the grade RA is given to courses which are evaluated only through internal assessment, the student shall register for the course again in the subsequent semester, fulfilling the norms as to earn a pass in the course. However, attendance requirements need not be satisfied.

For the Audit Course and Integrated Learning Experience, on its successful completion a 'completed' certificate will be issued by the head of the institute. Every student needs a minimum of 75% attendance in the Audit / integrated Learning experience compulsorily. However, for valid reasons, the Head of the Institution may permit a student to exempt/complete this requirement in the subsequent years. Successful completion of these courses is compulsory for the award of Diploma. These courses will be monitored by the central committee constituted by Autonomous. The grades O, A+, A, B+, B, C obtained for the one/two credit course (not the part of curriculum) shall figure in the Grade Sheet under the title 'Value Added Courses/Internship/Industrial training'.

The courses for which the grades obtained are SA will not figure in the Grade Sheet.

Grade Sheet

After results are declared, Grade Sheets will be issued to each student which will contain the following details: The college in which the student has studied, the list of courses registered during the semester and the grade scored. The Grade Point Average (GPA) for the semester and the Cumulative Grade Point Average (CGPA) of all courses enrolled from the first semester onwards. GPA for a semester is the ratio of the sum of the products of the number of credits acquired for courses and the corresponding points to the sum of the number of credits acquired for the courses in the semester. CGPA will be calculated in a similar manner, considering all the courses registered from the first semester. RA grades will be excluded for calculating GPA and CGPA.

$$CGPA = \frac{\sum_{i=1}^n C_i GP_i}{\sum_{i=1}^n C_i}$$

where C_i is the number of Credits assigned to the course

GP_i is the point corresponding to the grade obtained for each course

n is number of all courses successfully cleared during the particular semester in the case of GPA and during all the semesters in the case of CGPA.

Award of Diploma

A student shall be declared to be eligible for the award of the Diploma provided the student has,

- Successfully gained the required number of total credits as specified in the curriculum corresponding to the student's program within the stipulated time.
- Successfully completed the course requirements, appeared for the end semester examinations and passed all the subjects within the period as prescribed.
- Successfully passed any additional courses prescribed whenever the student is readmitted under E - Scheme from the earlier regulations.

- Successfully completed the Integrated Learning Experience requirements.
- No disciplinary action pending against the student.
- The award of Diploma must have been approved by the Board of Examinations.

Classification of Diploma Awarded

FIRST CLASS WITH DISTINCTION

A student who satisfies the following conditions shall be declared to have passed the examination in First class with Distinction:

- Should have passed the examination in all the courses of all the six semesters (4 semesters in the case of Lateral Entry) in the student's First Appearance. The duration of the program shall be extended up to one additional semester in case of any withdrawals from end semester examination. Withdrawal from examination will not be considered as an appearance.
- Should have secured a CGPA of not less than 8.50.
- One-year authorized break of study (if availed of) shall be permitted within the four years period (three years in the case of lateral entry) for award of First class with Distinction.
- The candidates should NOT have been prevented from writing the end semester examination due to lack of attendance in any semester.

FIRST CLASS

A student who satisfies the following conditions shall be declared to have passed the examination in First class:

- Should have passed the examination in all the courses in all six semesters (4 semesters in the case of Lateral Entry). The duration of the program shall be extended up to one additional semester in case of any withdrawals from end semester examination. Withdrawal from examination will not be considered as an appearance.
- One-year authorized break of study (if availed of) or prevention from writing the end semester examination due to lack of attendance (if applicable) shall be provided with the duration of four years (three years in the case of lateral entry) for award of First class.
- Should have secured a CGPA of not less than 6.50.

SECOND CLASS

All other students who qualify for the award of the Diploma shall be declared to have passed the examination in Second Class.

Discipline

Every student is expected to maintain disciplined and respectable behaviour both within and outside the college premises, refraining from engaging in any activities that may tarnish the reputation of the college.

The Head of the Institution shall constitute a disciplinary committee consisting of the Head of the Institution, Two Heads of Department of which one should be from the faculty of the student, to enquire into acts of indiscipline and notify the authorities about the disciplinary action recommended for approval.

In case of any serious disciplinary action which leads to suspension or dismissal, then a committee shall be constituted.

If a student indulges in malpractice in any of the end semester examinations, student shall be liable for punitive action as prescribed by the Autonomous Examination from time to time. For any malpractices in any continuous assessment, the same shall be reported to the Head of the Institution for disciplinary actions.

Credit Distribution

Semester	No of Courses	Periods	Credits
Semester I	8	640	20
Semester II	8	640	20
Semester III	8	640	20
Semester IV	1	540	16
Semester V	8	640	21
Semester VI	9	640	21
Semester VII	2	640	15
Total			133

ANNEXURE - I
E – SCHEME
(Implemented from the Academic Year 2023 – 2024 onwards)
CURRICULUM OUTLINE
Architectural Assistantship (Sandwich)

THIRD SEMESTER

S. No.	Course Category	Course Type	Code	Course Title	L-T-P	Period (Hrs.)	Credit	End Exam
1	Professional core	Theory	AAE3110	History of Architecture-I	3-0-0	45	3	Theory
2	Building science and applied engineering	Theory	AAE3210	Building Materials	3-0-0	45	3	Theory
3	Building science and applied engineering	Practicum	AAE3330	Surveying	2-0-2	60	3	Theory
4	Professional core	Practical	AAE3420	Architectural Drawing-II	0-0-4	60	2	Practical
5	Professional core	Practical	AAE3520	Architectural Design Studio-I	0-0-4	60	2	Practical
6	Skill enhancement	Practical	AAE3620	Computer Studio-I	0-0-4	60	2	Practical
7	Building science and applied engineering	Practicum	AAE3740	Building Construction and Detailing-I	1-0-2	45	2	Practical
8	Open Elective	Advanced Skill Certification	AAE3860	Advanced Skill Certification-III	0-0-4	60	2	NA
9	Humanities & Social Science	Integrated Learning Experience	GLE3980	Growth Lab	-	24	-	-
10	Audit Course	Integrated Learning Experience	ACE3981	Induction Program - II	-	16	-	-
11	Audit Course	Integrated Learning Experience	ACE3982	I&E/ Club Activity/ Community Initiatives	-	24	-	-
12	Audit Course	Integrated Learning Experience	ACE3983	Shop Floor Immersion	-	8	-	-
13	Audit Course	Integrated Learning Experience	ACE3984	Student-Led Initiative	-	22	-	-
14	Audit Course	Integrated Learning Experience	ACE3985	Emerging Technology seminars	-	16	-	-
15	Audit Course	Integrated Learning Experience	ACE3986	Health & Wellness	-	20	1	NA
					Library	-	15	-
					Test & Revision	-	60	-
TOTAL						640	20	

ANNEXURE - I**E – SCHEME****(Implemented from the Academic Year 2023 – 2024 onwards)****CURRICULUM OUTLINE****Architectural Assistantship (Sandwich)****FOURTH SEMESTER**

S. No.	Course Category	Course Type	Code	Course Title	L-T-P	Period	Credit	End Exam
1	Professional elective	Theory		Elective-1	3-0-0	45	3	Theory
	Professional elective	Practicum		Elective-2	1-0-4	75	3	Practical
2	Professional core	Practical	AAE4373	Industrial training (SW)	(December to May)	450	10	Practical/ Viva voce
					Test/Revision	30		
TOTAL						600	16	

ANNEXURE - I
E – SCHEME
(Implemented from the Academic Year 2023 – 2024 onwards)
CURRICULUM OUTLINE
Architectural Assistantship (Sandwich)

FIFTH SEMESTER

S. No.	Course Category	Course Type	Code	Course Title	L-T-P	Period (Hrs.)	Credit	End Exam
1	Building science and applied engineering	Theory	AAE5110	Mechanics of Structures	4-0-0	60	4	Theory
2	Professional core	Theory	AAE5210	History of Architecture-II	3-0-0	45	3	Theory
3	Building science and applied engineering	Practicum	AAE5330	Building Services	2-0-2	60	3	Theory
4	Professional core	Practical	AAE5420	Architectural Design studio-II	0-0-4	60	2	Practical
5	Skill enhancement	Practical	AAE5520	Computer Studio-II	0-0-4	60	2	Practical
6	Building science and applied engineering	Practicum	AAE5640	Environmental Science for Architecture	1-0-2	45	2	Practical
7	Building science and applied engineering	Practicum	AAE5740	Building Construction and Detailing-II	1-0-4	75	3	Practical
8	Open Elective	Advanced Skill Certification	AAE5860	Advanced Skill Certification-IV	0-0-4	60	2	NA
9	Audit Course	Integrated Learning Experience	ACE5982	I&E/ Club Activity/ Community Initiatives		23		
10	Audit Course	Integrated Learning Experience	ACE5983	Shop Floor Immersion		8		
11	Audit Course	Integrated Learning Experience	ACE5984	Student-Led Initiative		15		
12	Audit Course	Integrated Learning Experience	ACE5985	Emerging technology seminars		14		
13	Audit Course	Integrated Learning Experience	ACE5986	Health & Wellness		16		
14	Audit Course	Integrated Learning Experience	ACE5987	Special interest groups (placement training)		24		
15				Library		15		
					Test & Revision	60		
TOTAL						640	21	

ANNEXURE - I
E – SCHEME
(Implemented from the Academic Year 2023 – 2024 onwards)
CURRICULUM OUTLINE
Architectural Assistantship (Sandwich)

SIXTH SEMESTER

S. No.	Course Category	Course Type	Code	Course Title	L-T-P	Period (Hrs.)	Credit	End Exam
1	Building science and applied engineering	Theory	AAE6110	Structural Design	4-0-0	60	4	Theory
2	Professional core	Theory	AAE6210	Quantity Surveying and Cost Estimation	3-0-0	45	3	Theory
3	Professional elective	Theory		Elective -3 Program Pathway	3-0-0	45	3	Theory
4	Professional core	Practical	AAE6420	Architectural Design Studio-III	0-0-4	60	2	Practical
5	Skill enhancement	Practical	AAE6520	Computer Studio-III	0-0-4	60	2	Practical
6	Professional elective	Practicum		Elective-4 Program specialization	1-0-4	75	3	Practical
7	Humanities & Social Science	Practicum	AAE6740	Innovation & Startup	1-0-2	45	2	Project
8	Open Elective	Advanced Skill Certification	AAE6960	Advanced Skill Certification-V		60	2	NA
9	Audit Course	Integrated Learning Experience	ACE6981	Induction program-III		24		
10	Audit Course	Integrated Learning Experience	ACE6984	Student-Led Initiative		30		
11	Audit Course	Integrated Learning Experience	ACE6986	Health & Wellness		29		
12	Audit Course	Integrated Learning Experience	ACE6987	Special Interest groups (placement training)		32		
					Library	-	15	-
					Test & Revision		60	
TOTAL						640	21	

ANNEXURE - I
E – SCHEME
(Implemented from the Academic Year 2023 – 2024 onwards)
CURRICULUM OUTLINE
Architectural Assistantship (Sandwich)

SEVENTH SEMESTER

S. No.	Course Category	Course Type	Code	Course Title	L-T-P	Period (Hrs.)	Credit	End Exam
1	Project/Internship	Project/Internship	AAE7152	Mini project (SW) (June to November)		120	4	Project
2	Professional core	Practical	AAE7273	Industrial training (SW) (June to November)	-	495	11	Practical Viva voce
TOTAL						615	15	

Note: **Every student should select any one from the In-House Projector Internship or Fellowship. The guidelines given have to be followed.
For the Sandwich programme, Industrial Training in the fourth and seventh semester will be given. The guidelines given have to be followed.

LIST OF ELECTIVES

Elective-I (THEORY)

S.No	Coursecategory	Course type	Code	Coursetitle	L-T-P	Period (Hrs)	credit	Endexam
1.	Professionalelective	Theory	AAE4111	TheoryofDesign	3-0-0	45	3	Theory
2	Professionalelective	Theory	AAE4112	VernacularArchitecture	3-0-0	45	3	Theory
3	Professionalelective	Theory	AAE4113	ProfessionalPractice	3-0-0	45	3	Theory
4	Professionalelective	Theory	AAE4114	TownPlanning	3-0-0	45	3	Theory
5	Professionalelective	Theory	AAE4115	HumanSettlement &Planning	3-0-0	45	3	Theory
6	ProgramElective	Theory		Interdisciplinecourse#	3-0-0	45	3	Theory
#Coursesfrom otherprogrammeswiththesamecredit can beconsidered after properapprovalfromthe Chairperson, Autonomous Examinations.								

Elective-II (PRACTICUM)

S.No	Coursecategory	Coursetype	Code	Coursetitle	L-T-P	Period (Hrs)	credit	Endexam
1.	Professionalelective	Practicum	AAE4241	ArchitecturalModelMaking	1-0-4	75	3	Practical
2	Professionalelective	Practicum	AAE4242	FurnitureDesign	1-0-4	75	3	Practical
3	Professionalelective	Practicum	AAE4243	Site Planning	1-0-4	75	3	Practical
4	Professionalelective	Practicum	AAE4244	Low-Cost Building Design and Techniques	1-0-4	75	3	Practical
5	Professionalelective	Practicum	AAE4245	SpacePlanning	1-0-4	75	3	Practical

Elective-3 PATHWAY (THEORY)

S.No	Course category	Course type	Code	Course title	L-T-P	Period (Hrs)	credit	End exam
1.	Professional elective	Theory	AAE6311	ElementsofInteriorDesign	3-0-0	45	3	Theory
2	Professional elective	Theory	AAE6312	ModernArchitecture	3-0-0	45	3	Theory
3	Professional elective	Theory	AAE6313	DisasterMitigationand Management	3-0-0	45	3	Theory
4	Professional elective	Theory	AAE6314	ArchitecturalAcoustics	3-0-0	45	3	Theory
5	Professional elective	Theory	AAE6315	ContemporaryArchitecture	3-0-0	45	3	Theory
6	Elective Open elective	Theory		OnlineElectiveCourses\$				
\$ Online courses with the same credit available in AICTE, SWAYAM, NPTEL and reputed Institutions with the proper evaluation system and certification can be considered after proper approval from the Chairperson ofAutonomous of Examinations.								

Elective - 4 - SPECIALIZATION (PRACTICUM)

S.No	Course category	Course type	Code	Course title	L-T-P	Period (Hrs)	credit	End exam
1.	Professional elective	Practicum	AAE6641	Interior Design and Detailing	1-0-4	75	3	Practical
2	Professional elective	Practicum	AAE6642	Landscape Design and Detailing	1-0-4	75	3	Practical
3	Professional elective	Practicum	AAE6643	StructuralDetailingandDrawing	1-0-4	75	3	Practical
4	Professional elective	Practicum	AAE6644	Contemporary Building Materials	1-0-4	75	3	Practical
5	Professional elective	Practicum	AAE6645	Green buildings	1-0-4	75	3	Practical

ANNEXURE – II
SCHEME OF EXAMINATIONS
Architectural Assistantship (Sandwich)

III SEMESTER

S. No.	Course Code	Course	Examination Marks		Total Marks	Min. For Pass	Duration of Exam Hours	End Exam
			Internal Assessment Marks	Autonomous Exam Marks#				
1	AAE3110	History of Architecture-I	40	60	100	40	3	Theory
2	AAE3210	Building Materials	40	60	100	40	3	Theory
3	AAE3330	Surveying	40	60	100	40	3	Theory
4	AAE3420	Architectural Drawing-II	40	60	100	40	3	Practical
5	AAE3520	Architectural Design Studio-I	40	60	100	40	3	Practical
6	AAE3620	Computer Studio-I	40	60	100	40	3	Practical
7	AAE3740	Building Construction and Detailing-I	40	60	100	40	3	Practical
8	AAE3860	Advanced Skill Certification-III						NA
9	GLE3980	Growth Lab						**
10	ACE3981	Induction Program - II						**
11	ACE3982	I&E/ Club Activity/ Community Initiatives						**
12	ACE3983	Shop Floor Immersion						**
13	ACE3984	Student-Led Initiative						**
14	ACE3985	Emerging Technology seminars						**
15	ACE3986	Health & Wellness						NA
			280	420	700	-	-	

Autonomous Examinations will be conducted for 100 marks and will be converted to 60 marks.

ANNEXURE – II
SCHEME OF EXAMINATIONS
Architectural Assistantship (Sandwich)

IV SEMESTER

S. No .	Course Code	Course	Examination Marks		Total Marks	Min. For Pass	Duration of Exam Hours	End Exam
			Internal Assessment Marks	Autonomous Exam Marks#				
1	-	Elective theory	40	60	100	40	3	Theory
2	-	Elective Practicum	40	60	100	40	3	Practical
3	AAE4373	Industrial training (SW) (December to May)	40	60	100	40	3	Practical
			120	180	300	-	-	

Autonomous Examinations will be conducted for 100 marks and will be converted to 60 marks.

V SEMESTER

S. No .	Course Code	Course	Examination Marks		Total Marks	Min. For Pass	Duration of Exam Hours	End Exam
			Internal Assessment Marks	Autonomous Exam Marks#				
1	AAE5110	Mechanics of Structures	40	60	100	40	3	Theory
2	AAE5210	History of Architecture-II	40	60	100	40	3	Theory
3	AAE5330	Building Services	40	60	100	40	3	Theory
4	AAE5420	Architectural Design studio-II	40	60	100	40	3	Practical
5	AAE5520	Computer Studio-II	40	60	100	40	3	Practical
6	AAE5640	Environmental Science for Architecture	40	60	100	40	3	Practical
7	AAE5740	Building Construction and Detailing-II	40	60	100	40	3	Practical
8	AAE5860	Advanced Skill Certification-IV						NA
9	ACE5982	I&E/ Club Activity/ Community Initiatives						**
10	ACE5983	Shop Floor Immersion						**
11	ACE5984	Student-Led Initiative						**
12	ACE5985	Emerging technology Seminars						**
13	ACE5986	Health & Wellness						**
14	ACE5987	Special interest groups (Placement training)						**
			280	420	700	-	-	

Autonomous Examinations will be conducted for 100 marks and will be converted to 60 marks.

ANNEXURE – II
SCHEME OF EXAMINATIONS
Architectural Assistantship (Sandwich)

VI SEMESTER

S.No.	Course Code	Course	Examination Marks		Total Marks	Min. For Pass	Duration of Exam Hours	End Exam
			Internal Assessment Marks	Autonomous Exam Marks#				
1	AAE6110	Structural Design	40	60	100	40	3	Theory
2	AAE6210	Quantity Surveying and Cost Estimation	40	60	100	40	3	Theory
3	-	Elective -3 Program Pathway	40	60	100	40	3	Theory
4	AAE6420	Architectural Design Studio-III	40	60	100	40	3	Practical
5	AAE6520	Computer Studio-III	40	60	100	40	3	Practical
6	-	Elective-4 Program specialization	40	60	100	40	3	Practical
7	AAE6740	Innovation & Startup	40	60	100	40	3	Project
8	AAE6960	Advanced Skill Certification-V						NA
9	ACE6981	Induction program-III						**
10	ACE6984	Student-Led Initiative						**
11	ACE6986	Health & Wellness						**
12	ACE6987	Special Interest groups (placement training)						**
			280	420	700	-	-	

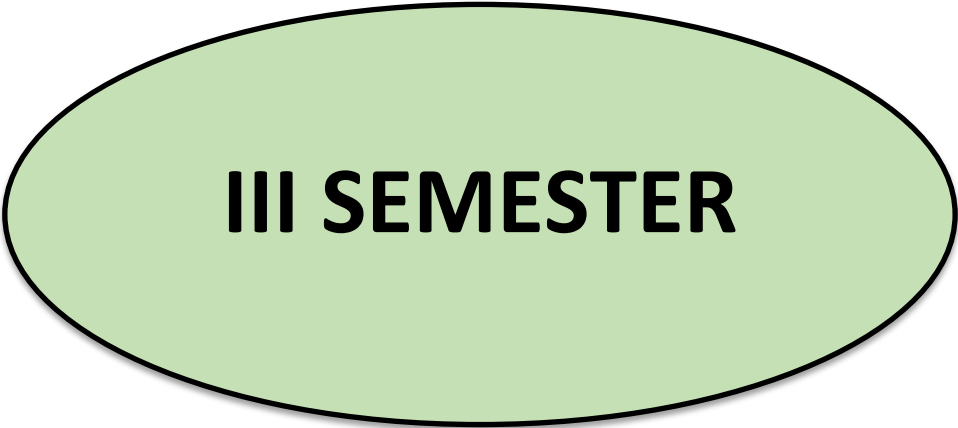
Autonomous Examinations will be conducted for 100 marks and will be converted to 60 marks.

ANNEXURE – II
SCHEME OF EXAMINATIONS
Architectural Assistantship (Sandwich)

VII SEMESTER

S. No.	Course Code	Course	Examination Marks		Total Marks	Min. For Pass	Duration of Exam Hours	End Exam
			Internal Assessment Marks	Autonomous Exam Marks#				
1	AAE7152	Mini project (SW) (June to November)	40	60	100	40	3	Project
2	AAE7273	Industrial training (SW) (June to November)	40	60	100	40	3	Practical
			80	120	200	-	-	

Autonomous Examinations will be conducted for 100 marks and will be converted to 60 marks.



III SEMESTER

AAE3110 – HISTORY OF ARCHITECTURE - I

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3110

Semester : III SEMESTER

Course Title : HISTORY OF ARCHITECTURE-I

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
HISTORY OF ARCHITECTURE - I	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	EGYPTIAN & WEST ASIA	8
II	GREECE & ROME	12
III	EARLY CHRISTIAN AND BYZANTINE	8
IV	ROMANESQUE & GOTHIC	9
V	RENAISSANCE	8
Total		45

COURSE DESCRIPTION

Students of Architectural Assistantship at diploma level must be well conversant with the skills of preparing working drawings, vocabulary, broad exposure to communicate and understand the vocabulary and terminology in the field of Architecture. The course on History of Architecture develops appreciation regarding past and current trends in the field of architecture. The teacher should try to create interest among the students for this course by organizing site visits to the local old monuments. Use of audio-visual aids, emphasis on materials, construction methods, structural system and design concepts involved and also motivate the students.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understand the various Architectural characters.
- Know about the Evolution of Church forms.
- Understand the various features of Dome.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3110.1	Develop knowledge in Egyptian architecture.
E3110.2	Understand the Greece and Roman architecture.
E3110.3	Know about Early Christian and Byzantine architecture.
E3110.4	Acquire knowledge in Romanesque and Gothic architecture
E3110.5	Understand the salient features of the Renaissance style.

Pre-requisites

Nil

CO-POs & PSOs mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3110.1	3	-	2	-	2	-	3	3	-	2
E3110.2	3	-	2	-	2	-	3	3	-	2
E3110.3	3	-	2	-	2	-	3	3	-	2
E3110.4	3	-	2	-	2	-	3	3	-	2
E3110.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Power point presentation
- Videos

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks)
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE3110 – HISTORY OF ARCHITECTURE - I

AAE3110		L	T	P	C
THEORY		3	0	0	3
Unit I	EGYPTIAN & WEST ASIA	8 Hrs			
EGYPT: Architectural Character - Mass to Trabeated construction and general characteristics of Egyptian Architecture					2
Great Pyramid of Cheops, Gizeh & its sketches					2
Great temple of Amman, Karnak.					1
West Asia: Babylonian and Persian Cultures					1
Architectural Character-Ziggurat, Urnammu					1
Palace at Persepolis – Hanging Garden of Babylon.					1
Unit II	GREECE & ROME	12 Hrs			
GREECE: Architectural character					1
Orders - Doric, Ionic, Corinthian - Sketches					3
Parthenon, Athens					2
ROME - Architectural Character and Advances in Engineering					2
About roman aqueducts - pont du gard, nimes					2
Pantheon, Rome					2
Unit III	EARLY CHRISTIAN AND BYZANTINE	8 Hrs			
Evolution of church forms					2
Pendentives & Dome in Byzantine Architecture - Sketches					2
Architectural character of St. Sophia, Constantinople					2
Architectural character of St. Vitale, Ravenna					2
Unit IV	ROMANESQUE & GOTHIC	9 Hrs			
ROMANESQUE - Architectural character in Italy,					2
Architectural character in France and England					3
Abbey Aux- homes					1
GOTHIC - Architectural character –Notre Dame, Paris - Sketches					3

Unit V	RENAISSANCE	8 Hrs
The idea of rebirth and revival of art		1
Renaissance, High Renaissance and Baroque Periods		2
Features of a typical Renaissance Palace		2
Dome construction		1
St. Paul's, London.		1
St. Peter's, Rome - sketches.		1
TOTAL HOURS		45

Suggested List of Students Activity:

Seminars to be organized on any one of the following topics

1. Architectural Character in Greek Architecture.
2. Evolution of church forms
3. Dome Construction

Text/Reference Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	A History of Architecture	Sir Banister Fletcher	20th edition, Architectural Press 1996
2.	Indian Architecture (Buddhist and Hindu Period),	Percy Brown	Taraporevala and Sons, Bombay
3.	The Architecture of India (Buddhist and Hindu Period),	Satish Grover	Vikas Publishing Housing Pvt.Ltd., New Delhi.

Web-based/Online Resources

S.No	Website/Links
1	https://www.youtube.com/watch?v=m8fcpZxrkwI&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF
2	https://www.youtube.com/watch?v=vhDztZYARSM&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF&index=2
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE3110 – HISTORY OF ARCHITECTURE - I

Time : 3 Hrs

Max.Marks : 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Write about Amon temple, Karnak.	I	U	E3110.1	PO1, PO2,PO5,PO7
	2.	Explain the features of Great pyramid of Cheops.	I	R	E3110.1	PO1, PO2,PO5,PO7
	3.	Sketch the section of Great pyramid of Cheops.	I	U	E3110.1	PO1,PO2,PO5,PO7
	4.	Explain the features of hanging garden of babylon	I	R	E3110.1	PO1,PO2,PO5,PO7
II	5.	Highlight any seven architectural characters of Greek architecture.	II	R	E3110.2	PO1,PO2,PO5,PO7
	6.	Explain the salient features of Parthenon temple, Athens.	II	U	E3110.2	PO1,PO2,PO5,PO7
	7.	Sketch the plan of Pantheon temple, Rome.	II	U	E3110.2	PO1,PO2,PO5,PO7
	8.	Explain the three order of Greece with sketches.	II	R	E3110.2	PO1,PO2,PO5,PO7
III	9.	Explain the evolution of church form.	III	R	E3110.3	PO1,PO2,PO5,PO7
	10.	Sketch the types of domes in byzantine architecture.	III	U	E3110.3	PO1,PO2,PO5,PO7
	11.	Sketch the plan of St.Vitale church, Ravenna.	III	R	E3110.3	PO1,PO2,PO5,PO7
	12.	Highlight the architectural characters of St. Sophia, Constantinople	III	U	E3110.3	PO1,PO2,PO5,PO7
IV	13.	Explain the architectural features of Romanesque in Italy	IV	U	E3110.4	PO1,PO2,PO5,PO7
	14.	Explain about Abbey aux homes, Caen.	IV	R	E3110.4	PO1,PO2,PO5,PO7
	15.	Sketch the plan of Notre dame church, Paris.	IV	U	E3110.4	PO1,PO2,PO5,PO7
	16.	Highlight any seven architectural characters of Romanesque architecture in France.	IV	U	E3110.4	PO1,PO2,PO5,PO7

V	17.	Write any seven features of renaissance architecture.	V	R	E3110.5	PO1,PO2,PO5,PO7
	18.	Explain St.Peter's cathedral, Rome.	V	R	E3110.5	PO1,PO2,PO5,PO7
	19.	Sketch the plan of St.Paul's cathedral, London.	V	U	E3110.5	PO1,PO2,PO5,PO7
	20.	Explain the features of a typical renaissance palace	V	U	E3110.5	PO1,PO2,PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE3210 – BUILDING MATERIALS

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3210

Semester : III SEMESTER

Course Title : BUILDING MATERIALS

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
BUILDING MATERIALS	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	CLASSICAL BUILDING MATERIALS	9
II	CEMENT, MORTAR, CONCRETE	9
III	TIMBER AND GLASS	9
IV	PROTECTIVE AND DECORATIVE FINISHES	9
V	MISCELLANEOUS MATERIALS	9
Total		45

COURSE DESCRIPTION

Diploma holders in Architectural Assistantship are supposed to prepare working drawings of buildings. Knowledge of building materials and their behavior under varied climatic conditions is very essential from the point of construction for providing detailed specifications in the working drawings. Therefore, the course in building materials includes imparting basic knowledge in the properties and use of the basic materials like: stones, bricks, lime, cement, paints, timber, exterior and interior finish, glass, plastics, building hardware, roofing materials etc. Teachers are expected to demonstrate the samples of different materials, discuss their properties with particular references to their use and appearance in particular situations depending upon climate and environmental conditions of the site, where the materials are to be used.

COURSE OBJECTIVE:

The objective of this course is to introduce the students the world of building materials both traditional and modern so that they could make a proper choice for the various needs.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3210.1	Describe about the classical building materials.
E3210.2	Acquire knowledge about cement, mortar and concrete.
E3210.3	Identify the properties and types of timber and glass.
E3210.4	Identify the protective and decorative materials.
E3210.5	Classify the thermal and acoustics materials and damp proofing materials

Pre-requisites

Knowledge of basic Science

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3210.1	3	-	2	1	2	-	3	2	3	-
E3210.2	3	-	2	1	2	-	3	2	3	-
E3210.3	3	-	2	1	2	-	3	2	3	-
E3210.4	3	-	2	1	2	-	3	2	3	-
E3210.5	3	-	2	1	2	-	3	2	3	-
Total	15	-	10	5	10	-	15	10	15	-
Correlation Level	3	-	2	1	2	-	3	2	3	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

This is one of the fundamental subjects covering basic building construction and finishing materials. Teachers should demonstrate samples of various materials while class room instruction. Students should be encouraged to collect samples of various materials and catalogues of manufacturer. The students may maintain a scrapbook for this purpose. A museum of building materials may be developed where samples of latest materials their specifications, characteristics, rates to enhance the level of understanding of the students.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write

any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING :

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE3210– BUILDING MATERIALS

AAE3210		BUILDING MATERIALS	L	T	P	C
THEORY			3	0	0	3
Unit I	CLASSICAL BUILDING MATERIALS					9 Hrs
STONE: Formation & Classification – Characteristics of good stone –Uses of stones						2
BRICKS – Methods of manufacturing-Qualities of good bricks-Classification of Bricks						2
– Uses of bricks –Standard and nominal size of bricks as per BIS- Different Sizes and Shapes of Bricks.						1
CLAY TILES: Tile Manufacturing –properties of a good tile- Various Types of Tiles and their Uses.						2
LIME: Sources of Lime, Classification of Lime, Various Stages of Lime, Characteristics of Lime, Types and Uses.						2
Unit II	CEMENT, MORTAR, CONCRETE					9 Hrs
CEMENT: Composition of ordinary Portland cement-functions of cement ingredients – Compounds formed during setting action of cement and their importance –setting time of cement.						1
Types of Cement and Uses – Grades of cement as per BIS (33, 43 and 53) - White and Colored Cements – Storage of cement.						1
Types of Cement and Uses – Grades of cement as per BIS (33, 43 and 53) - White and Colored Cements – Storage of cement.						2
MORTAR: Characteristics of mortar - Types of Mortar using Lime, Cement, Mud, - Composite mortars using fly ash and surkhi -Proportions and Uses.						2
CONCRETE: Characteristics of cement Concrete – proportion of cement concrete - P.C.C, R.C.C. - Water Cement ratio, workability and strength of Concrete –						1
Mixing, Laying and Curing of concrete-various methods of curing. Admixtures-functions of admixtures. Other types of concrete-lime concrete and light weight concrete.						1
Hollow concrete blocks and Paver blocks (Interlocking tile)- Lightweight concrete blocks.						1
Unit III	TIMBER AND GLASS					9 Hrs
TIMBER: Characteristics of Timber - Classification of Timber – Defects of Timber and their Causes – Seasoning, Preservation of timber-objects,						2
methods of preservation and types of preservatives and Fire resistance of Timber –						1
Wood based Products and Uses (Veneering, Laminate, Plywood, block board, batten board, particle board). Bamboo – characters and uses in building industry.						2
GLASS: Types of Glass and Uses – Glass blocks - Definition of Curtain wall – Purpose of Curtain walls - Structural Glazing						1
						2

Unit IV	PROTECTIVE AND DECORATIVE FINISHES	9 Hrs
PAINTS -paints, painting-functions of paints, ingredients of an oil paint-Base, Vehicle, pigments, Solvent, Drier and Fillers.		1
Various types of Paints –aluminium paint, cement paint, emulsion paint, enamel paint, plastic paint - Defects in Painting.		2
VARNISH : Varnish-functions of varnish, constituents of a varnish, characteristics of a good varnish, types of varnishes.		2
DISTEMPERS : composition of distemper- Oil Bound Distempers, dry distempers, Painters Putty (solignum), Plaster Putty,		2
White washing and colour washing-preparation, application and uses. Anti- Termite and pest control Treatments.		2
Unit V	MISCELLANEOUS MATERIALS	9 Hrs
THERMAL AND ACOUSTIC MATERIALS : Thermocole, Cork, Glass Wool, Fiber boards and		1
Patented Insulating Materials- Gypsum board		1
PLASTICS : Classification and Uses - PVC, Fiber Reinforced Plastics (FRP), Ultra PVC sections.		1
METALS : MS (Powdered Coated and Painted), Stainless Steel,		1
Aluminum (Anodized and Powdered Coated) – Types and Uses		2
DAMP PROOFING MATERIALS : Various types of damp proofing materials - Properties and functions.		1
WATER PROOFING MATERIALS : Various types of water proofing materials - Properties and functions		1
TOTAL HOURS		45

Suggested List of Students Activity:

Students may be encouraged to collect samples of various materials and efforts should be made to maintain a good building material museum.

The students are also expected to go through Architecture Journals like Inside – Outside, Interiors Today, Design and Interiors, Architect and builder, Builders Friend etc. They may make scrapbook of relevant brochures.

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Building Materials	N.Subramanian	1th edition, oxford university press,2019
2.	Building Materials	S.C.Rangwala	3th edition ,Charotar Publishing House Pvt. Ltd.,2022
3.	Building Materials	S.K.Duggal	NEW AGE,4th Revised edition,2012.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=cx5gPKp9QEc&list=PLbMVogVj5nJQU7M0LdA77p_XaaWBJniNc
4	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT
5	https://www.youtube.com/watch?v=LYvDoy7MtkE
6	https://www.youtube.com/@dotediplomae-lectures3545

MODEL QUESTION PAPER**AAE3210– BUILDING MATERIALS****Time : 3 Hrs****Max.Marks : 100****PART- A (5 X 2 X 10 Marks = 100 Marks)**

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No.	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes (PO)
I	1.	Explain about the characteristics of good bricks.	I	U	E3210.1	1,3,4,5,7
	2.	Explain the classification of bricks.	I	R	E3210.1	1,3,4,5,7
	3.	Explain the classification of lime.	I	U	E3210.1	1,3,4,5,7
	4.	Explain the Various Types of Tiles and their Uses.	I	R	E3210.1	1,3,4,5,7
II	5.	What is meant by admixtures? Enumerate the functions of admixtures.	II	R	E3210.2	1,3,4,5,7
	6.	Explain any three types of Cement & its uses.	II	U	E3210.2	1,3,4,5,7
	7.	Explain the types of concrete.	II	U	E3210.2	1,3,4,5,7
	8.	Explain the Types of Mortar using Lime, Cement, Mud.	II	R	E3210.2	1,3,4,5,7
III	9.	Explain about defects of timber and their causes with sketches.	III	R	E3210.3	1,3,4,5,7
	10.	Write the characters and uses of bamboo in building industry.	III	U	E3210.3	1,3,4,5,7
	11.	Explain the various types of glass.	III	R	E3210.3	1,3,4,5,7
	12.	Explain the methods of preservation and types of preservatives of Timber.	III	U	E3210.3	1,3,4,5,7
IV	13.	Explain about the various Paints & its uses?	IV	U	E3210.4	1,3,4,5,7
	14.	Discuss various types of varnishes with their properties and uses.	IV	R	E3210.4	1,3,4,5,7
	15.	Write about i) Anti-skid and ii) Anti-stain measures.	IV	U	E3210.4	1,3,4,5,7
	16.	Explain About Functions Of Varnish And Characteristics Of A Good Varnish.	IV	U	E3210.4	1,3,4,5,7

V	17.	Explain the properties & uses of Fiber Board & Gypsum Board.	V	R	E3210.5	1,3,4,5,7
	18.	Explain the classification of plastics.	V	R	E3210.5	1,3,4,5,7
	19.	Write the properties & uses of Aluminium.	V	U	E3210.5	1,3,4,5,7
	20.	What are the various types of damp proofing materials.	V	U	E3210.5	1,3,4,5,7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE3330– SURVEYING

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3330

Semester : III SEMESTER

Course Title : SURVEYING

Course Type : PRACTICUM

L	T	P	C
2	0	2	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
SURVEYING	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	CHAIN & COMPASS SURVEYING	12
II	LEVELLING	12
III	THEODOLITE SURVEYING	12
IV	TRIGNOMETRICAL LEVELLING AND CONTOUR SURVEYING	12
V	TACHEOMETRY	12
Total		60

COURSE DESCRIPTION

Students of Architectural Assistantship at diploma level are expected to manage the site which involves taking measurements surveying and inspection one of the main concerns which is required to be carried out for the development of township, residential colonies, public buildings etc in the survey work. Therefore, thorough basic knowledge and skills of surveying including chain surveying, compass surveying, leveling, Theodolite surveying, tachometric surveying is very essential. Teachers while imparting instructions are expected to explain various concepts and principles by showing various equipment's and demonstration thereof. Considerable stress should be given on the use of survey equipment's.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Know about the basic concepts about surveying.

- Understand the principles of chain surveying
- Know about the principles of compass surveying.
- Understand the principles of leveling for different Architectural Purposes.
- Know the principle of Tachometry surveying
- Understand the contours.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3330.1	Outline the chain, compass survey.
E3330.2	Finding difference of level between two points.
E3330.3	Knowing the accuracy of reading in Theodolite and calculating the areas of traverse
E3330.4	Finding the height of an object & volumes of cutting and embankment of earth work
E3330.5	Knowing the distant object observation by Tacheometry

Pre-requisites

Knowledge of basic Science

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3330.1	3	2	-	3	2	-	3	2	3	-
E3330.2	3	2	-	3	2	-	3	2	3	-
E3330.3	3	2	-	3	2	-	3	2	3	-
E3330.4	3	2	-	3	2	-	3	2	3	-
E3330.5	3	2	-	3	2	-	3	2	3	-
Total	15	10	-	5	10	-	15	10	15	-
Correlation Level	3	2	-	3	2	-	3	2	3	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

Teachers while imparting instructions are expected to explain various concepts and principles by showing various equipment's and demonstration thereof and doing practical. Considerable stress should be given on the use of survey equipment's.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written Test Theory (Unit 1 & 2)	Written Test Theory (Unit 3 & 4)	Practical Test (All Exercises)	Written Test (Complete Theory Portions)	Written Examination (Complete Theory Portions)
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	50	50	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	15 th Week	16 th Week	

CONTINUOUS ASSESSMENT

- **CA1 and CA2:** Assessment written test should be conducted for 50 Marks. The marks scored will be converted to 10 Marks for each test.

CA1 and CA2, Assessment written test should be conducted for two units as below.

Answer any Five questions. (5 X 10 Marks = 50 Marks).

Eight questions will be asked, students should write Five questions.

Each unit Four questions can be asked.

- **CA 3:** All the exercises/experiments should be completed and kept for the practical test. The students shall be permitted to select any one experiment by lot for the test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded for 100 marks will be converted to 10 Marks for the internal mark.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. Each exercise/experiment should be evaluated for 10 Marks. The total marks awarded should be converted to 30 Marks for the practical test as per the scheme of evaluation as below.

The details of the practical documents to be prepared as per the instruction below.

Each exercise observation and calculations should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or file. The reading and calculations and graph should be written by the student manually. The

evaluated practical document should be submitted for the Practical Test (CA3). The mark scored by the students should be converted to 30 marks. The same should be included as per the allocation in the practical test.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION - Practical Test

Sl.No.	Description	Marks
A	Aim / Apparatus required	10
B	Procedure / Observation	20
C	Formula / Calculation	20
D	Result / Graph	10
E	Practical document (All Practicals)	30
F	Viva Voce	10
Total		100

- **CA4:** Model examination should be conducted for complete theory portions as per the end semester question pattern. The marks awarded should be converted to 10 marks for the internal assessment.

Question Pattern:

Answer ten questions by selecting two questions from each unit. Each question carries 10 marks each.

Four questions will be asked from every unit, students should write any two questions.

Question Pattern - Model Examination and End Semester Examination - Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer ten questions by selecting two questions from each unit. Each question carries 10 marks each.

The questions are to be numbered from 1 to 20. All the units are to be covered with equal weightage.

PART – A	10 x 10 = 100 marks
Total	100 Marks *

Note: * Autonomous Examinations will be conducted for 100 Marks and converted to 60 Marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE3330 – SURVEYING

Unit III	THEODOLITE SURVEYING						12 Hrs			
AAE3330		SURVEYING				L	T	P	C	
PRACTICUM						2	0	2	3	
Unit I	CHAIN & COMPASS SURVEYING						12 Hrs			
Theory:										
1.1 Introduction: Definition – object of surveying – Division of surveying – plane and geodetic survey – classification of survey.									2	
1.2 Chain surveying: Instruments used for chaining –Ranging-Types – Direct & Indirect ranging- Baseline – Check line – Tie line – offsets – Types of offsets (Description only).									2	
1.3 Compass surveying: Purpose of compass surveying – magnetic dip & declination - magnetic& true meridian –magnetic true & Arbitrary bearing – WCB &RB – Fore and back bearing –calculation of included angle – closed frame work – simple problems only.									2	
Practical:										
1. Ranging, Chaining, Offsetting (Length of chaining is not less than 40m).									3	
2. Running closed compass traverse and finding the included angles from bearings									3	
Unit II	LEVELLING						12 Hrs			
Theory:										
Levelling –levels –functions – Types of levels –Levelling staff – Types- Temporary adjustment –Back Sight - Fore sight – Inter sight – Change point – Bench mark – Height of instrument –Line of collimation - Reduction of levels –Methods – Height of collimation and Rise and fall method-									2	
Simple Problems.									2	
Practical:										
3.Fly Levelling – Minimum 6 points with 2 change points – reduction by height collimation method.									3	
4.Fly Levelling – Minimum 6 points with 2 change points – reduction by rise and fall method.									3	

Theory:		
Types of Theodolite – Transit and non-Transit Theodolite – Vernier and Micrometer Theodolite -Technical terms used in Theodolite survey –		2
Temporary adjustment – Fundamental lines – Relation between them. Measurement of Horizontal angle – methods - general, repetition and reiteration methods –		2
measurement of vertical angle – Latitude and Departure – Consecutive coordinates – Independent coordinate. Computation of Area of closed traverse problems.		2
Practical:		
5. Horizontal angle by Repetition method – Face left and Face right Observation.		3
6. Horizontal angle by Reiteration method – Face left and Face right Observation.		3
Unit IV	TRIGNOMETRICAL LEVELLING AND CONTOUR SURVEYING	12 Hrs
Theory:		
4.1 - Finding elevation of objects – Base accessible – Base inaccessible – Single plane & Double plane methods –		1
Simple problems only.		1
4.2 - Definition – Contour – Contouring – Characteristics of Contours – Contour Gradient – Uses of Contour plan and Map – Calculation of capacity of reservoirs –		2
Simple problems only.(Trapezoidal & Prismoidal rule only)		1
Practical:		
7. Determination of height of an object when the base is accessible.		1
8. Determination of RL at top of an object by single plane method.		3
Unit V	TACHEOMETRY	12 Hrs
Theory:		
Instrument used – system of Tacheometry – stadia and tangential systems– Tacheometric Constants -- Fixed hair method – Analatic lens (no Proof) –		2
Distance and elevation formulae for horizontal and inclined sight (no proof)- simple problems on determination of distance and elevation of objects (staff held vertical only)		2
- determination of tachometric constants from field observations for horizontal and inclined line of sight. (staff held vertical only)		1
Total station: Applications-Component Parts-Accessories used-Instrument preparation and setting.		1
Practical:		
9. Determination of horizontal distance between Instrument station and staff station.		3
10. Total Station – component parts – Instrument preparation – (Study only)		3
TOTAL HOURS		60

Suggested students activities:

1. Quiz
2. Group discussion
3. Seminar
4. Surprise tests

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Surveying Vol 1 & 2	S. K. Duggal,	5th edition & 4th edition, McGraw-Hill, 2019 & 2017
2.	Surveying and Levelling Vol I & II	S.S. Bhavikatti	1st 2nd edition, I K International Publishing House Pvt. Ltd, 2019
3.	Surveying Volume I & II	B.C. Punmia , Ashok Kumar Jain, Arun Kumar Jain	17th edition, Laxmi Publications, 2016 & 2023

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/@iit
4	https://www.nptelvideos.com/
5	https://www.youtube.com/@dotediplomae-lectures3545

AAE3330– SURVEYING

MODEL QUESTION PAPER

Time : 3 Hrs

Max.Marks : 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions		Unit	Bloom s Level	Course Outcome	Program Outcomes (PO)																		
I	1.	Explain classification of surveying.	I	U	E3330.1	1,2,4,5,7																		
	2.	Explain indirect method of ranging	I	U	E3330.1	1,2,4,5,7																		
	3.	The following were the bearings observed with a prismatic compass in a closed traverse ABCD. Calculate their included angle and apply the check <table><thead><tr><th>Line</th><th>FB</th><th>BB</th></tr></thead><tbody><tr><td>AB</td><td>66°15'</td><td>246°15'</td></tr><tr><td>BC</td><td>123°45'</td><td>303°45'</td></tr><tr><td>CD</td><td>201°20'</td><td>21°20'</td></tr><tr><td>DA</td><td>314°40'</td><td>134°40'</td></tr><tr><td>AB</td><td>66°15'</td><td>246°15'</td></tr></tbody></table>	Line	FB	BB	AB	66°15'	246°15'	BC	123°45'	303°45'	CD	201°20'	21°20'	DA	314°40'	134°40'	AB	66°15'	246°15'	I	AP	E3330.1	1,2,4,5,7
Line	FB	BB																						
AB	66°15'	246°15'																						
BC	123°45'	303°45'																						
CD	201°20'	21°20'																						
DA	314°40'	134°40'																						
AB	66°15'	246°15'																						
	4.	Explain purpose of compass surveying, magnetic dip and declination.	I	R	E3330.1	1,2,4,5,7																		
II	5.	Explain the temporary adjustments of levelling.	II	U	E3330.2	1,2,4,5,7																		
	6.	Explain any three types of levels.	II	U	E3330.2	1,2,4,5,7																		
	7.	The following consecutive readings were taken with a level. 0.795, 1.655, 2.890, 3.015, 0.655, 625, 0.955, 0.255, 1.635, 3.660 and 2.375. The instrument was shifted after the 4 th and 8 th readings. The RL of first point is 550.600m. Find the RL of all the points by height of collimation method and apply the	II	AP	E3330.2	1,2,4,5,7																		

		usual check.																						
	8.	The following consecutive readings were taken along AB with 4m leveling staff on a continuously sloping ground at a interval of 20m. 0.349 on A, 1.450, 2.630, 3.875, 0.655, 1.750, 2.965, 3.945,1.125, 2.475 and 3.865 on B. The elevation of A was 60.350m. Enter the above readings in a level book form and reduce the level by ie and fall method. Also find the gradient of the line AB.	II	AP	E3330.2	1,2,4,5,7																		
III	9.	Explain vernier and micrometer theodolite.	III	R	E3330.3	1,2,4,5,7																		
	10.	Explain measurement of horizontal angle by method of repetitions.	III	U	E3330.3	1,2,4,5,7																		
	11.	The following details relate to a closed traverse. Find the independent coordinates. <table border="1"><thead><tr><th>Line</th><th>Latit ude</th><th>Departu re</th></tr></thead><tbody><tr><td>AB</td><td>-298</td><td>+169</td></tr><tr><td>BC</td><td>-151</td><td>+362</td></tr><tr><td>CD</td><td>+630</td><td>+383</td></tr><tr><td>DE</td><td>+301</td><td>-560</td></tr><tr><td>EA</td><td>-482</td><td>-354</td></tr></tbody></table>	Line	Latit ude	Departu re	AB	-298	+169	BC	-151	+362	CD	+630	+383	DE	+301	-560	EA	-482	-354	III	AP	E3330.3	1,2,4,5,7
Line	Latit ude	Departu re																						
AB	-298	+169																						
BC	-151	+362																						
CD	+630	+383																						
DE	+301	-560																						
EA	-482	-354																						
	12.	Write the detailed procedure for measuring vertical angle using theodolite.	III	U	E3330.3	1,2,4,5,7																		
IV	13.	A transit was set up at a distance of 187m from a temple. The angle of depression to the base of the temple was 3°20' and the angle of elevation to its top was 10°20'. The elevation of the instrument axis was 176.150m. Find the height of the temple and RL at top and bottom of temple.	IV	AP	E3330.4	1,2,4,5,7																		
	14.	Explain detailed procedure for single plane method.	IV	U	E3330.4	1,2,4,5,7																		

	15.	Following are the areas within the contour lines of proposed reservoir. <table><tr><th>Contour</th><th>Areas enclose in m²</th></tr><tr><td>160</td><td>3050</td></tr><tr><td>150</td><td>3000</td></tr><tr><td>140</td><td>2200</td></tr><tr><td>130</td><td>1900</td></tr><tr><td>120</td><td>1200</td></tr><tr><td>110</td><td>750</td></tr><tr><td>100</td><td>250</td></tr></table> Taking 100 m as the bed level of the reservoir determine the capacity of the reservoir when the maximum water level is 160m. Calculate the capacity of reservoir using Trapezoidal rule and Prismoidal rule.	Contour	Areas enclose in m ²	160	3050	150	3000	140	2200	130	1900	120	1200	110	750	100	250	IV	AP	E3330.4	1,2,4,5,7
Contour	Areas enclose in m ²																					
160	3050																					
150	3000																					
140	2200																					
130	1900																					
120	1200																					
110	750																					
100	250																					
	16.	Explain about characteristics of contours.	IV	R	E3330.4	1,2,4,5,7																
V	17.	Explain stadia and tangential systems	V	R	E3330.5	1,2,4,5,7																
	18.	Determine the distance between the instrument station P and the staff station Q from the following data. Height of Instrument = 1.500m Vertical angle = +4°30’ Staff readings = 0.645, 1.000, 1.355 Also determine the RL of Q if RL of P is 200.400. Take C=100 &K=0	V	AP	E3330.5	1,2,4,5,7																
	19.	Determine the constants of a Tacheometer from the following observations. <table><tr><th rowspan="2">Horizontal distance in m</th><th colspan="2">Staff reading</th></tr><tr><th>Bottom</th><th>Top</th></tr><tr><td>40</td><td>1.085</td><td>1.385</td></tr><tr><td>60</td><td>0.925</td><td>1.525</td></tr></table>	Horizontal distance in m	Staff reading		Bottom	Top	40	1.085	1.385	60	0.925	1.525	V	U	E3330.5	1,2,4,5,7					
Horizontal distance in m	Staff reading																					
	Bottom	Top																				
40	1.085	1.385																				
60	0.925	1.525																				
	20.	How do you find out the tacheometric constants of tacheometer.	V	U	E3330.5	1,2,4,5,7																

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE3420 – ARCHITECTURAL DRAWING- II

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3420

Semester : III SEMESTER

Course Title : ARCHITECTURAL DRAWING- II

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ARCHITECTURAL DRAWING-II	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	BASICS OF RENDERING	15
II	TWO POINT PERSPECTIVE	15
III	ONE POINT PERSPECTIVE	15
IV	SCIOGRAPHY	15
Total		60

COURSE DESCRIPTION

Graphic presentation and Art are considered to be the language of Engineers and Architects which is a means of communication among the designers, engineers, technicians, architects & draftsmen engaged in the field of construction of buildings. The translation of ideas into practice with the use of this graphic language is beyond imagination. Thus, for effective and efficient communication among all those involved in the system, it becomes necessary that the personal working in different capacities acquire appropriate skills in the use of this graphic language.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Introduce architectural drawing techniques and to facilitate effective visual communication.
- Understand and apply rendering in drawings.
- Draw perspective drawings.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3420.1	Apply the basic rendering techniques and rendering the finishing materials
E3420.2	Applying coloring compositions with forms
E3420.3	Demonstrate the one-point perspective.
E3420.4	Demonstrate the two-point perspective
E3420.5	Create shade and shadows on two-point perspective

Pre-requisites

Knowledge of basic drawing.

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3420.1	2	-	2	-	1	-	3	3	-	2
E3420.2	2	-	2	-	1	-	3	3	-	2
E3420.3	2	-	2	-	1	-	3	3	-	2
E3420.4	2	-	2	-	1	-	3	3	-	2
E3420.5	2	-	2	-	1	-	3	3	-	2
Total	10	-	10	-	5	-	15	15	-	10
Correlation Level	2	-	2	-	1	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Course in Architectural Drawing - II shall be conducted by giving small time exercises.
- Goals and Objectives of each exercise shall be made clear to the students before starting the exercises.

Assessment Methodology:

	Continuous Assessment (40 Marks)				End Semester Examination (60 Marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test (Unit 1 & 2)	Practical Test (Unit 3 & 4)	Practical Document	Practical Test	Practical Examination
Portion	Ex. 1 to 6	Ex. 7 to 13	All Exercises	All Exercises	All Exercises
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10 Marks	100	100
Converted to	10	10	10	10	60
Internal Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

DETAILED ALLOCATION OF MARKS: CA1, CA2**Note:**

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	DRAWING	20
B	SPECIFICATION	10
C	RENDERING	10
D	PRESENTATION	10
TOTAL MARKS		50

CA 3: Practical document should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test and End Semester Examination with a bonafide certificate.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	Any one question from Unit I & II which carries	40
B	Any one question from Unit III & IV which carries	50
C	Viva-voce	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE3420 – ARCHITECTURAL DRAWING- II

AAE3420	ARCHITECTURAL DRAWING- II	L	T	P	C
PRACTICAL		0	0	4	2
Unit I	BASICS OF RENDERING	15 Hrs			
Theory *					
Rendering of finishing materials – Stones, Bricks, Plaster finishes Shading.					1
Basics of Color Rendering – working with presentation drawings Rendering the above perspectives with different mode like color pencils or poster color or pen and ink – rendering of trees, cars and human figures – improvising presentation drawings.					1
Coloring of various compositions with natural and geometric form –Objects – Imaginary drawings.					1
Practical Exercises *					
1. Rendering on finishing materials					3
2. Rendering of trees, cars and human figures					3
3. Coloring of various compositions of forms					3
4. Rendering on imaginary drawing					3
Unit II	TWO POINT PERSPECTIVE	15 Hrs			
Theory *					
Perspective projection concepts and methods- Various types of perspective views – Vanishing point- Station point – Picture plane , horizon , cone of vision, etc. – Normal eye view, Bird’s eye view –simple and complex geometrical forms.					1
Principles of Perspective – Two point Two points perspectives for exteriors – residence.					1
Practical Exercises *					
5. Two-point perspectives of Residence – I					6
6. Two-point perspectives of Residence – II					6
Unit III	ONE POINT PERSPECTIVE	15 Hrs			
Theory *					
Principles of Perspective – One point					3
Practical Exercises *					
7. One-point perspectives of Bedroom					3
8. One-point perspectives of Kitchen					3
9. One-point perspectives of Dining					3
10. One-point perspectives of Living room					3

Unit III	ONE POINT PERSPECTIVE	15 Hrs
Theory *		
Principles of Perspective – One point		3
Practical Exercises *		
11. One-point perspectives of Bedroom		3
12. One-point perspectives of Kitchen		3
13. One-point perspectives of Dining		3
10. One-point perspectives of Living room		3
Unit IV	SCIOGRAPHY	15 Hrs
Theory *		
Principles of sciography – study of Light and Shade.		3
Application of shades and shadows of Architectural Elements like Sunshade, Steps Porch, Fins, Projections, Columns, Beams, Curved objects.		
Practical Exercises *		
11. Shades and shadows of simple objects in 2D & 3D		3 5 4
12. Shades and shadows on sunshades, Steps, Fins, columns and curved objects		
13. Drawing the sciography of buildings at site plan level.		
TOTAL HOURS		60

Suggested List of Students Activity:

1. Viewing real buildings and photographing for perspective views from different angles.
2. Observing and drawing the sciography on buildings at different times of the day.
3. Assignments.
4. Quiz
5. Preparation of two-point perspective with pencil rendering
6. Preparation of one point perspective with color rendering

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Neufert Architect's data	Ernst Neufert	4th edition, Wiley ,2012.
2.	Architectural graphics	Francis dk ching	6th edition, Wiley ,2015.
3.	Architectural Rendering	Bernard Alkins	Walter Foster ArtBooks,1986

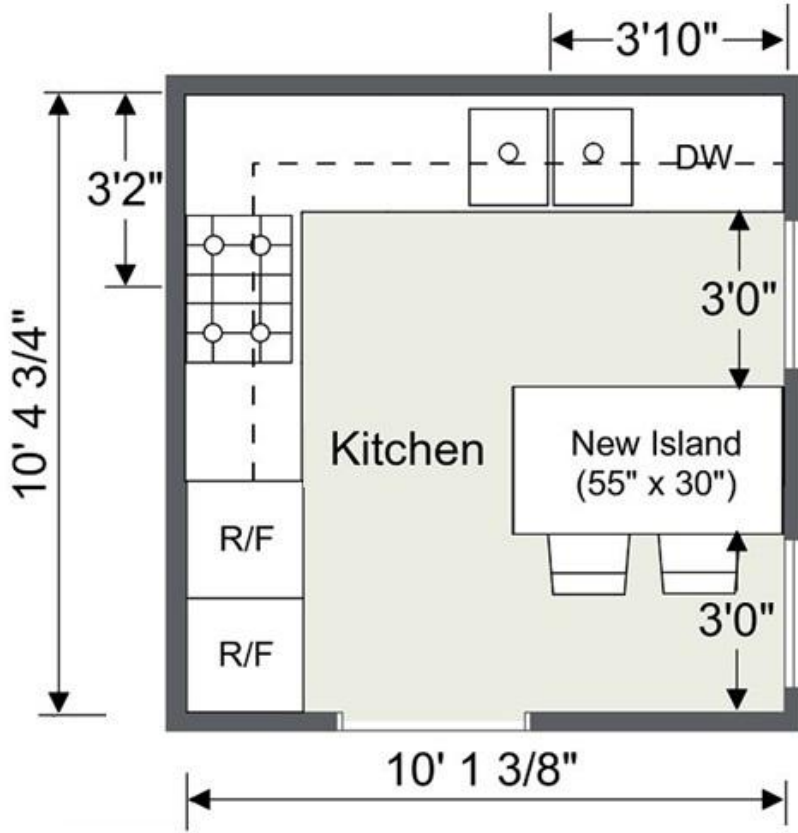
Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=VrU73IwRyc4&list=PLLy_2iUCG87Bw9XPfEF3r3EW5U1AOv8iz
4	https://www.youtube.com/watch?v=q8R1618khj4&list=PLLy_2iUCG87DX9O-iMjSGODVgCi4YyN5L

MODEL QUESTION PAPER

Duration: 3 hrs.

Max.marks: 100

PART – A (40 MARKS)			
Si. No	Name of the Experiments	CO	PO
1	Draw one point perspective for the given sketch and render the drawing with color pens. 	E3420.3	1,3,5,7
PART – B (50 MARKS)			
2	Draw a two-point perspective of Residence and render the view with colors.	E3420.2	1,3,5,7
Viva voce – 10 mark			

AAE3520 – ARCHITECTURAL DESIGN STUDIO - I

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3520

Semester : III SEMESTER

Course Title : ARCHITECTURAL DESIGN STUDIO - I

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ARCHITECTURAL DESIGN STUDIO-I	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	DESIGN PROBLEM – 1	30
II	DESIGN PROBLEM – 2	30
Total		60

COURSE DESCRIPTION

Large percentage of diploma holders in Architectural Assistantship find employment with private architects and also majority of them go for self-employment. Therefore, diploma holders are required to design small residential buildings. This course aims at providing practical exercises in designing so as to develop appropriate knowledge and skills in building design. Teachers are expected to show various types of designs of small to medium residential buildings to develop an appreciation of different designs.

COURSE OBJECTIVE:

The objective of this course is to enable the student

- To develop space visualization application of materials to simple architectural forms.
- To apply the knowledge gained in other subjects and basic design to design of

buildings of single/ simple activity.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3520.1	Collect the data for given design
E3520.2	Develop the literature study for given design.
E3520.3	Describe the case study report
E3520.4	Develop the conceptual design scheme.
E3520.5	Develop the detailed Design and presentation drawings which include Plan, Elevation, Section, Perspective Views etc for given design problem.

Pre-requisites

Knowledge of basic drawing.

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3520.1	2	2	3	-	3	-	3	3	-	3
E3520.2	2	2	3	-	3	-	3	3	-	3
E3520.3	2	2	3	-	3	-	3	3	-	3
E3520.4	2	2	3	-	3	-	3	3	-	3
E3520.5	2	2	3	-	3	-	3	3	-	3
Total	10	10	15	-	15	-	15	15	-	15
Correlation Level	2	2	3	-	3	-	3	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Engage and Motivate: Instructors should actively engage students to boost their learning confidence.
- Real-World Relevance: Incorporate relatable, real-life examples and engineering applications to help students understand and appreciate course concepts.

Assessment Methodology:

	Continuous Assessment (40 Marks)				End Semester Examination (60 Marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test (Unit I)	Practical Test (Unit II)	Practical Document	Practical Test	Practical Examination
Portion	Design Problem I	Design Problem II	All Exercises	All Exercises	All Exercises
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10 Marks	100	100
Converted to	10	10	10	10	60
Internal Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	-

DETAILED ALLOCATION OF MARKS: CA1, CA2**Note:**

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	PLAN	15
B	SECTION	10
C	ELEVATION	10
D	VIEWS	15
TOTAL MARKS		50

CA 3: Practical document should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test and End Semester Examination with a bonafide certificate.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	SITE PLAN	15
B	PLAN	25
C	SECTION	20
D	ELEVATION	20
E	VIEWS	10
	VIVA	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE3520 – ARCHITECTURAL DESIGN STUDIO - I

AAE3520	ARCHITECTURAL DESIGN STUDIO - I	L	T	P	C
PRACTICAL		0	0	4	2
NOTE: The problems involve simple space organization starting with single space single use - small span Horizontal movement - single bay-passive energy type spaces. The study of space standards and anthropometrics related to each problem is stressed upon. Anthropometries of each space and anthropometries as related to physically handicapped and elderly persons are required to be studied.					
Unit I	DESIGN PROBLEM – 1				30 Hrs
Bedroom with attached toilet, Kitchen and Toilet for a physically challenged Person.					30
Unit II	DESIGN PROBLEM – 2				30 Hrs
Design problem shall deal with planning for small groups of people and minor activities for residence and shall include data collection, Literature study, Case study, Conceptual design scheme with block model, Detailed Design and presentation drawings which includes Plan, Elevation, Section, Perspective Views etc.,					30
TOTAL HOURS					60

Suggested List of Students Activity:

- Presentation/Seminars by students on any recent technological developments based on the course.
- Periodic class quizzes conducted on a weekly/fortnightly based on the course.
- Mini project that shall be an extension of any practical lab exercise to real-world application.
- The student should conduct a case study of the similar building
- Student should analyze the design data based on the case study
- Student should use Google to conduct a desktop study of buildings designed by famous architects.

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

TEXT BOOKS

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Neufert Architect's data	Ernst Neufert	4th edition, Wiley ,2012.
2.	Time Saver Standards for Building Types	Joseph De Chiara, Michael J Crosbie	McGraw Hill Professional ,2005
3.	Time Saver Standards for Interior Design and Space Planning	Joseph De Chiara, Julius Panero, Martin Zelnik	McGraw Hill 2005.

Web-based/Online Resources

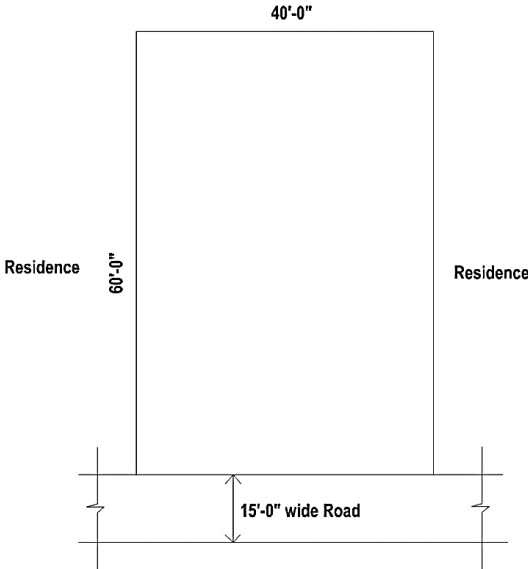
S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.archdaily.com

MODEL QUESTION PAPER

Duration: 3 Hrs

Max. Marks: 100

PART- A (90 Marks)

Si. No	Questions	CO	PO																									
1	Design a residence of area 1200 sq.ft in the given site with your own requirements, By applying the rules and regulations of local authority.  SITE PLAN Drawing Requirements: <table><tr><td>Site plan</td><td>-</td><td>1:100</td><td>-</td><td>15Marks</td></tr><tr><td>Plan</td><td>-</td><td>1:50</td><td>-</td><td>25Marks</td></tr><tr><td>Elevation</td><td>-</td><td>1:50</td><td>-</td><td>20Marks</td></tr><tr><td>Section</td><td>-</td><td>1:100</td><td>-</td><td>20Marks</td></tr><tr><td>Views</td><td>-</td><td>not to scale</td><td>-</td><td>10</td></tr></table> Marks	Site plan	-	1:100	-	15Marks	Plan	-	1:50	-	25Marks	Elevation	-	1:50	-	20Marks	Section	-	1:100	-	20Marks	Views	-	not to scale	-	10	E3520.1-5	PO1, PO2, PO3, PO5, PO7
Site plan	-	1:100	-	15Marks																								
Plan	-	1:50	-	25Marks																								
Elevation	-	1:50	-	20Marks																								
Section	-	1:100	-	20Marks																								
Views	-	not to scale	-	10																								
Viva voce – 10 marks																												

AAE3620 – COMPUTER STUDIO-I

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3620

Semester : III SEMESTER

Course Title : COMPUTER STUDIO-I

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
COMPUTER STUDIO-I	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	GETTING STARTED	12
II	DRAW COMMANDS & EDITING COMMANDS	12
III	DRAWING AIDS & CREATING TEXT BASIC DIMENSIONING INQUIRY COMMANDS	12
IV	HATCHING BLOCKS	12
V	PLOTTING DRAWINGS IN AUTOCAD PRACTICE WITH COMPLETE DRAWING	12
Total		60
TEST & REVISION		9

COURSE DESCRIPTION

In the present times an architectural assistant should be capable of drafting drawings on the computer as most of the architects lay greater stress on computerized drawings for their ease of drafting, editing, managing and presentation. At the end of the course the students should be able to make 2-D architectural drawings for presentation and construction purposes. The student should get familiar with the latest CAD software.

COURSE OBJECTIVE:

The objective of this course is to enable the student

- To understand the Fundamentals of software to create a basic 2D and 3D drawing in AutoCAD.
- To enable student the techniques and teaches them to be proficient in the use of AutoCAD to make simple geometric forms, rendering, house plan and other presentation techniques involved.
- To understand the tool for the task, the best way to use that tool and how to create new tools to accomplish tasks more efficiently.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3620.1	Create limits and Apply AutoCAD commands for drafting
E3620.2	Apply special commands in drafting
E3620.3	Show the proper dimensioning to the drawing.
E3620.4	Apply the layer concepts and blocks.
E3620.5	Prepare a set of approval drawings using AutoCAD and to develop mini project with report.

Pre-requisites

Knowledge of basic commands in AutoCAD.

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3620.1	2	-	2	2	-	-	3	3	3	2
E3620.2	2	-	2	2	-	-	3	3	3	2
E3620.3	2	-	2	2	-	-	3	3	3	2
E3620.4	2	-	2	2	-	-	3	3	3	2
E3620.5	2	-	2	2	-	-	3	3	3	2
Total	10	-	10	10	-	-	15	15	15	10
Correlation Level	2	-	2	2	-	-	3	3	3	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Assessment Methodology:

	Continuous Assessment (40 Marks)				End Semester Examination (60 Marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Practical Document	Practical Test	Practical Examination
Portion	Ex. 1 to 6	Ex. 7 to 10	All Exercises	All Exercises	All Exercises
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10 Marks	100	100
Converted to	10	10	10	10	60
Internal Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	-

DETAILED ALLOCATION OF MARKS: CA1, CA2**Note:**

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	2D MODEL	20
B	DIMENSION	10
C	SPECIFICATION	10
D	DETAILING	10
TOTAL MARKS		50

CA 3: Practical document should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test and End Semester Examination with a bonafide certificate.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	2D MODEL(plan, section, elevation)	50
B	DIMENSION	10
C	SPECIFICATION	10
D	DETAILING	20
	VIVA	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE3620 – COMPUTER STUDIO - I

AAE3620		COMPUTER STUDIO-I	L	T	P	C
PRACTICAL			0	0	4	2
Unit I	GETTING STARTED					12 Hrs
Starting AutoCAD - AutoCAD screen components- starting a drawing: open drawings, create drawings (start from scratch, use a template & use a wizard) - invoking Commands in AutoCAD - drawing lines in AutoCAD co-ordinate systems: absolute co-ordinate system, relative co-ordinate system - direct distance method - saving a drawing: save &save as - closing a drawing - quitting AutoCAD, opening an existing file. concept of object - object selection method: pick by box, window selection, crossing selection, all, fence, last previous, add, remove -erasing object: oops Command, Undo/Redo Commands – zoom Command - pan Command, panning in real time - setting units – object snap, running object snap, mode- drawing circles.						12
Unit II	DRAW COMMANDS & EDITING COMMANDS					12 Hrs
Command - RECTANGLE Command – ELLIPSE Command Elliptical arc- POLYGON Command (regular polygon) - PLINE Command – DONUT Command - POINT Command – construction line: XLINE Command, RAY Command - MULTILINE Command - MOVE Command-COPY Command- OFFSET Command -ROTATE Command- SCALE Command – STRETCH Command -LENGTHEN Command - TRIM Command - EXTEND Command – BREAK Command-CHAMFER Command – FILLET Command – ARRAY .Command - MIRROR Command - MEASURE Command – DIVIDE Command - EXPLODE Command - MATCHPROP Command – Editing with grips PEDIT.						12
Exercise1. Draw 5 different Geometric Shapes and hatch it with different patterns showing dimensions and area Exercise 2. A) Draw grill design for an window opening of size 4’ X5’ B) Draw grill design for an foyer opening of size 9’ X6’ Exercise 3. Draw a tile design for 2’ x2’ Exercise 4. Draw elevation and cross section for a window. Exercise 5. Draw elevation and cross section for a door.						
Unit III	DRAWING AIDS & CREATING TEXT BASIC DIMENSIONING INQUIRY COMMANDS					12 Hrs

Layers - layer properties manager dialog box - Object Properties: object property toolbar, properties window - LTSCALE factor - AUTO Tracking -REDRAW Command, REGEN Command. Creating single line text -drawing special characters - creating multiline text - editing text - text style. Fundamental dimensioning terms: dimension lines, dimension text, arrow heads, extension lines, leaders, centre marks and centerlines, alternate units - associative dimensions - dimensioning methods -drawing leader, AREA - DIST - ID - LIST - DBLIST – STATUS –DWGPROPS.		12
Exercise 6. Draw a plan, elevation and section o of a single room with furniture arrangement in plan.		
Unit IV	HATCHING BLOCKS	12 Hrs
BHATCH, hatch Commands - boundary hatch options: quick tab advance tab - hatching around text traces, attributes, shapes and solids – editing hatch boundary - boundary Commands the concept of blocks. Converting objects into a block: BLOCK - BLOCK Commands - nesting of blocks - inserting blocks: insert, MINSERT Commands - creating drawing files: WBLOCK command - defining block attributes - inserting blocks with attributes - editing attributes.		12
Exercise 7. Draw a double bedroom residence plan with proper dimension.		
Unit V	PLOTTING DRAWINGS IN AUTOCAD PRACTICE WITH COMPLETE DRAWING	12 Hrs
PLOT Command - plot configuration - pen assignments - paper size & orientation area - plot rotation & origin - plotting area – scale. Each student is required to prepare a set of orthographic projections of a building design approved by the teacher in charge.		12
Exercise 8. Draw an elevation and section of the residence drawn in exercise 7 with proper dimensions and specifications.		
Exercise 9. Design and draw an elevation of a compound wall and entrance gate with proper dimensions for the plan drawn in Exercise 7.		
Exercise 10. Design and draw the site plan for residence with all the details of landscape.		
TOTAL HOURS		60

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Desktop computers	1 per student
2.	Software for CAD drawings	1 per student
3	Projector	1 No

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Learn Autocad	Sunil K.Pandey,	Reprint 2010 Edition, S.K. Kataria & Sons, 2010
2.	Drafting & Design for Architectural & Construction	Dana.J. Hepler , Paul Ross Wallach, Donald E.Helper	9th Edition, Delmar Pub, 2012.
3.	Hands on AutoCAD	Glencoe McGraw-Hill	McGraw-Hill Inc., US, Student edition,2004

Web-based/Online Resources

S.No	Website/Links
1	https://www.autodesk.com/in/products/autocad/overview?mktvar002=5146914 SEM 21249115390 165181856284 kwd57212848&utm_source=GGL&utm_medium=SEM&utm_campaign=GGL_ACAD_AutoCAD_APAC_IN_eComm_SEM_BR_NA_EX_0000_5146914&utm_id=5146914&utm_erm=kwd57212848&term=1YEAR&tab=subscription&plc=ACDIST&gad_source=1&gclid=CjwKCAjwyo60BhBiEiwAHmVLJbYNup0zs84Xni27BqgogaKIeL5hJok8cl0ATOZ3ETeIHdOu4lvxoCY90QAvD_BwE

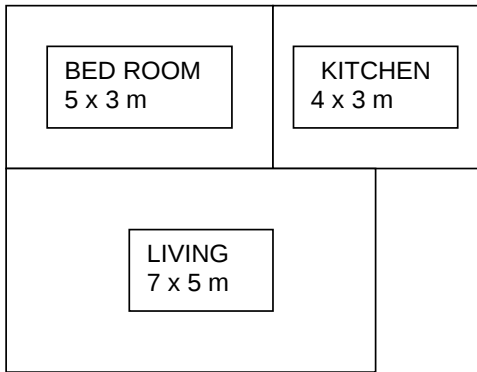
AAE3620 – COMPUTER STUDIO - I

MODEL QUESTION PAPER

Answer all the questions from part A; which Carry 90 marks.

Duration : 3 Hrs

Max. Marks: 100

Si. No	Name of the Experiments	CO	PO
PART- A (90 Marks)			
1	Draw the Building plan shown in figure with Elevation, Section with Dimensioning and specifications using Auto CAD:  Plan - 30 marks Elevation - 25 marks Section - 25 marks Dimensioning - 10 marks Note: The examiners should prepare minimum of 10 line plans (Area approximately equal to 100 Sq.m).	AAE3620.1-4	1,3,4,7
Viva-voce – 10 marks			

AAE3740 – BUILDING CONSTRUCTION AND DETAILING - I

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE3740

Semester : III SEMESTER

Course Title : BUILDING CONSTRUCTION AND DETAILING-I

Course Type : PRACTICUM

L	T	P	C
1	0	2	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
BUILDING CONSTRUCTION AND DETAILING-I	3	45	45	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	MASONRY – STONE & BRICK	10
II	FOUNDATION	9
III	FLOORS & ROOFS AND ARCHES & LINTELS	11
IV	TIMBER JOINTS, DOORS & WINDOWS	15
Total		45

COURSE DESCRIPTION

Students of architectural Assistantship at diploma level are supposed to prepare structural drawings, working drawings and detailed drawings of various components of buildings. Also, students are expected to design small residential buildings. For this purpose, it is essential that students are taught various components of building construction comprising of: foundations, super structure, openings, roofs, staircases, flooring and finishing and other allied building components. Therefore, the subject of building construction is very important for students undergoing diploma course in architectural Assistantship. While preparing drawings, teachers should lay considerable stress on proportioning, dimensioning, specification writing and printing and composition of drawing work. Teachers should also emphasis on environmental aspects like lighting, ventilation and orientation of buildings. Students should be asked to maintain a sketch

book for recording the observations from site visits. While conducting viva, teachers should point out specific mistakes done by students in the preparation of drawings.

COURSE OBJECTIVE:

The objective of this course is to enable the student

- To understand both in general and in detail the methods of construction by using basic materials such as brick and stone, foundation, floors and roofs, cement concrete construction, timber joints, doors and windows etc.,
- To draw the plan, elevation, section and construction details of elements of building components.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E3740.1	Develop knowledge about brick and stone masonry
E3740.2	Draw the plan, elevation, section and construction details of foundation
E3740.3	Acquire the knowledge in floors and roofs.
E3740.4	Draw the plan, elevation, section and construction details of doors and windows.
E3740.5	Draw the plan, elevation, section and construction details of elements of building components and to develop mini project with report.

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E3740.1	2	2	-	2	-	-	3	-	3	2
E3740.2	2	2	-	2	-	-	3	-	3	2
E3740.3	2	2	-	2	-	-	3	-	3	2
E3740.4	2	2	-	2	-	-	3	-	3	2
E3740.5	2	2	-	2	-	-	3	-	3	2
Total	10	10	-	10	-	-	15	-	15	10
Correlation Level	2	2	-	2	-	-	3	-	3	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of application in construction.

- Each exercise of detailing shall be made clear to students before starting drafting.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 6	Ex. 7 to 12	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

CONTINUOUS ASSESSMENT

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The students shall be permitted to select any one by lot for the test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test. Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

- **CA 3:** Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

- **CA 4:** All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	40
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	50
C	Viva voce	10

TOTAL	100
-------	-----

AAE3740 – BUILDING CONSTRUCTION AND DETAILING-I

AAE3740 PRACTICUM	BUILDING CONSTRUCTION AND DETAILING-I	L 1	T 0	P 2	C 2
Unit I	MASONRY – STONE & BRICK	10 Hrs			
STONE MASONRY: Definition – Technical terms – Dressing of Stones – Joints in Stone Masonry – Classification of Stone Masonry.					1 1
BRICK MASONRY: Technical terms – Bonds in Brick Work (English and Flemish bond up to two brick wall) – Bonds in Pier – Tee junction – Squint junction					1 1
Exercise 1. Plan, Elevation and Isometric view of alternate courses for English bond					3
Exercise 2. Plan, Elevation and Isometric view of alternate courses for Flemish bond.					3
Unit II	FOUNDATION	9 Hrs			
FOUNDATION Types of Soils – Types of Loads – Bearing Power of Soil – Types of Foundation – Causes of Failure of Foundation and measures to prevent such failures – Dewatering of Foundation Trenches – Pile Foundation – Types of Pile Foundations.					1 1 1
Exercise 3. Plan and sectional elevation of Spread Footing (Stone and Brick),					3
Exercise 4. Plan and sectional elevation of Isolated Footing, Combined Footing (R.C.C).					3
Unit III	FLOORS & ROOFS AND ARCHES & LINTELS	11 Hrs			
FLOORS: – Types of Flooring- Timber, P.C.C, R.C.C., Stone, Tile, Ribbed Flooring					1
ROOFS & ROOF COVERINGS - Technical terms - Classification of Roofs –Pitched Roof—Types of Pitched Roof (excluding Steel Trussed Roof)– Flat Roofs – Roof coverings for Pitched Roofs – FRP, PVC,AC sheet, Aluminum Sheets and country & Mangalore tiled roofing					1 1
ARCHES & LINTELS ARCHES & LINTELS: Technical terms – Types of Arches – Materials used for Construction – Types of Lintels.					1 1
Exercise 5. Cross section of different types of floors and Roof coverings.					3
Exercise 6. Elevation of all types of Arches and Cross section of Lintel cum sunshades					3

Unit IV	TIMBER JOINTS, DOORS & WINDOWS	15 Hrs
TIMBER JOINTS: Technical terms – Classification of Joints.		1
DOORS & WINDOWS: Technical terms – Location of Doors – Size of Doors – Types of Doors & Windows – Fixtures and Fastenings for Doors and Windows		1
Exercise 7. Plan, Elevation, Section of Wooden Paneled Door.		1
Exercise 8. Plan, Elevation, Section of Flush door.		1
Exercise 9. Plan, Elevation, Section of Partly Paneled and Partly Glazed door.		2
Exercise 10. Plan, Elevation, Section of Aluminum Glazed door.		2
Exercise 11. Plan, Elevation, Section of Wooden Paneled window		2
Exercise 12. Plan, Elevation, Section of and Glazed window.		2
Mini Project: Create a model of doors and windows.		3
TOTAL HOURS		45

Suggested Student Activities

1. Quiz
2. Group discussion
3. Seminar
4. Surprise tests

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	Each 1 per student
2.	Stool	1 No

Text Books

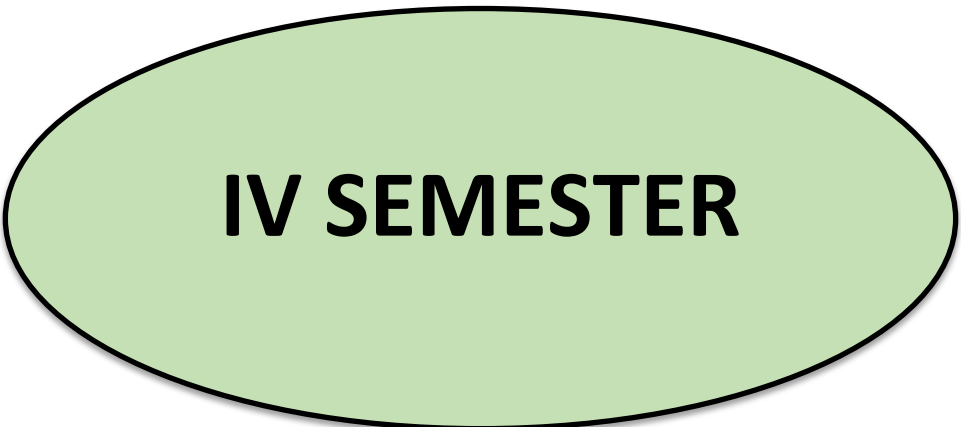
S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Building Materials	N.Subramanian	1th edition, oxford university press,2019
2.	Building Construction	S.C.Rangwala	33rd edition ,Charotar Publishing House Pvt. Ltd.,2006
3.	Building Construction details practical drawing	Banz.H,	CBS 2005

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT

AAE3740 – BUILDING CONSTRUCTION AND DETAILING-I**MODEL QUESTION PAPER****Time: Three hours****(Maximum Marks: 100)**

Si. No	Name of the Experiments	CO	PO
PART A			
Answer the question (1x40=40 Marks)			
1	1.Draw the Plan, Elevation and Isometric View of One brick wall of English Bond	E3740.1	1,2,4,7
PART – B			
Answer the question (1x50=50 Marks)			
2	Draw the Elevation and Sectional Plan of Aluminum Window.	E3740.4	1,2,4,7
VIVA VOCE – 10 Marks			



IV SEMESTER

ELECTIVE - I**AAE4111– THEORY OF DESIGN**

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4111

Semester : IV SEMESTER

Course Title : THEORY OF DESIGN

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
THEORY OF DESIGN	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION TO DESIGN	9
II	DESIGN METHODOLOGY MOVEMENT	9
III	CREATIVE THINKING	10
IV	ARCHITECTURAL CREATIVITY	9
V	PROCESS AND DESIGN	8
Total		45

COURSE DESCRIPTION

This course examines the Design theory is a system of ideas that explains how and why design's function. It provides designers with an understanding of the elements and principles of visual communication, as well as how they can be applied to solve problems through design thinking

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understand the design as a broader field and the changing role of designer in society.
- Have an exposure to methodologies, theories and models of the design process.
- Understand the process of creativity as well as to introduce techniques which will enable creative thinking.
- Interpret the creativity with respect to the discipline of architecture.
- Analyse the participatory approach to design.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4111.1	Understand the Introduction to design.
E4111.2	Analyze the rise of the design methodology movement from the 1950s.
E4111.3	Understand the term creativity
E4111.4	Understand the types of architectural concepts
E4111.5	Discuss about the People and design process

Pre-requisites

Knowledge of Theory of Architecture

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4111.1	3	-	2	-	2	-	3	3	-	2
E4111.2	3	-	2	-	2	-	3	3	-	2
E4111.3	3	-	2	-	2	-	3	3	-	2
E4111.4	3	-	2	-	2	-	3	3	-	2
E4111.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write

any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING :

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create

AAE4111– THEORY OF DESIGN

AAE4111		Elective – THEORY OF DESIGN		L	T	P	C
THEORY				3	0	0	3
Unit I	INTRODUCTION TO DESIGN						9 Hrs
Definition and understanding of design.							1
History of design process from earliest times through Renaissance, Beaux Arts, Bauhaus. Different classifications of design according to scale, process, mode of production, etc., self-conscious/ unselfconscious, design through drawing/ design through craft, pragmatic/ iconic/ analogic/ canonic or syntactic, hand-made/ machine made,							2
							2
product design to city design, functional/ aesthetic, nature vernacular/ technological.							2
							1
							1
Unit II	DESIGN METHODOLOGY MOVEMENT						9 Hrs
Context for the rise of the design methodology movement from the 1950s with the critique of modernism.							2
Theories of the first generation and the second-generation design methodologists.							2
Design as wicked problem.							1
Escalation and regression in design. Summary by Johnson of various models of the design process –							2
parametric or analysis/ synthesis/ evaluation, conjecture-refutation, paradigmatic, hermeneutical.							2
Unit III	CREATIVE THINKING						10 Hrs
Understanding the term creativity.							1
Theories on thinking - left brain/ right brain,							2
convergent/ divergent thinking,							2
lateral/ vertical thinking.							2
Broadbent's idea of the design spectrum - from the logical to chance.							1
Blocks in creative thinking.							1
Techniques to generate creativity as put forth by Broadbent, Bono.							1
Unit IV	ARCHITECTURAL CREATIVITY						9 Hrs
Types of architectural concepts – programmatic,analogic, metaphor, essence, etc.,							3
Channels to creativity in architecture as put forth by Antoniades.							3
Personal philosophies and strategies of individual designers.							3

Unit V	PROCESS AND DESIGN	8 Hrs
People and design process- concept of pattern language by Christopher Alexander, participatory approach to design, design as process involving time and people. Introduction to contemporary processes in design including diagramming, mapping, parametric exploration, etc.,		1
		2
		1
		1
		2
		1
TOTAL HOURS		45

Suggested List of Students Activity:

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	How Designers Think	Bryan Lawson	Architectural Press, 2005.
2.	The Diagrams of Architecture	Mark Garcia	Wiley 2010.
3.	Theory and practice of design	Frank G Janson	Forgotten books, 2018

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE4111– THEORY OF DESIGN

Time : 3 Hrs

Max.Marks : 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No.	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes (PO)
I	1.	Brief about the History of design process.	I	U	E4111.1	1,3,5,7
	2.	Explain in detail about the city design with example.	I	R	E4111.1	1,3,5,7
	3.	Enumerate the various elements of design with sketches.	I	U	E4111.1	1,3,5,7
	4.	Explain about the process of design stages in city design.	I	R	E4111.1	1,3,5,7
II	5.	Explain in detail about the critique of modernism.	II	R	E4111.2	1,3,5,7
	6.	Enumerate the Theories of the second - generation design methodologists.	II	U	E4111.2	1,3,5,7
	7.	Explain about the design process summarized by Johnson.	II	U	E4111.2	1,3,5,7
	8.	Explain the theories on Escalation and regression in design.	II	R	E4111.2	1,3,5,7
III	9.	Enumerate the stages of creative thinking.	III	R	E4111.3	1,3,5,7
	10.	Explain in detail about the theories on thinking.	III	U	E4111.3	1,3,5,7
	11.	Discuss the Broadbent's idea of the design spectrum with example.	III	R	E4111.3	1,3,5,7
	12.	Explain about the Blocks in creative thinking	III	U	E4111.3	1,3,5,7
IV	13.	Explain in detail with sketches a) Metaphor b) Analogic	IV	R	E4111.4	1,3,5,7
	14.	Enumerate the strategies of architectural creativity by designers.	IV	R	E4111.4	1,3,5,7
	15.	Brief about channels to creativity in architecture by Antoniades.	IV	U	E4111.4	1,3,5,7

	16.	Enumerate the personal philosophies of architectural creativity by any one individual designer.	IV	U	E4111.4	1,3,5,7
V	17.	Explain about the elements of pattern language by Christopher Alexander.	V	R	E4111.5	1,3,5,7
	18.	Discuss about the design as process involving time and people.	V	R	E4111.5	1,3,5,7
	19.	Brief about the process of design in contemporary style.	V	U	E4111.5	1,3,5,7
	20.	Explain about the people and design process in pattern language.	V	R	E4111.5	1,3,5,7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

ELECTIVE - I**AAE4112 – VERNACULAR ARCHITECTURE**

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4112

Semester : IV SEMESTER

Course Title : VERNACULAR ARCHITECTURE

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION**No. of weeks per semester: 15 weeks**

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
VERNACULAR ARCHITECTURE	3	45	40	100*	100	3 Hrs

Examinations will be conducted for 100 marks and will be converted to 60 marks*TOPICS AND ALLOCATION OF HOURS**

Unit	Topics	Time (Hrs)
I	INTRODUCTION TO VERNACULAR ARCHITECTURE	9
II	VERNACULAR ARCHITECTURE IN INDIAN CONTEXT	9
III	CONCEPTS AND PRINCIPLES IN VERNACULAR STYLE	10
IV	CASE STUDY OF AN IDENTIFIED SETTLEMENT	9
V	SUITABILITY IN PRESENT CONTEXT	8
Total		45

COURSE DESCRIPTION

This course examines the history, characteristics, and meaning of vernacular architecture – traditionally defined as the 95% of the built environment not exemplifying academic "high-style" design. Some of the more traditional topics include ethnic traditions in built form, the architecture of traditional Vernacular houses, as well as agrarian settings. By the end, we will entertain a vernacular approach to the entire built environment, what could be called the cultural landscape, in which so-called high style and more everyday buildings coexist and are part of a historical and spatial continuum.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- The subject looks at specific vernacular architectural communities of India.
- Identifies and interprets specific local, regional, and national vernacular traditions from India
- Develops a broader sense of understanding of the relationship between architecture, environment and culture.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4112.1	Understand the Introduction to Vernacular architecture.
E4112.2	Analyze the Vernacular Architecture in Indian Context.
E4112.3	Analyze The Concepts and Principles in Vernacular Style.
E4112.4	Understand the Detailed study of a traditional settlement.
E4112.5	Discussion on the Suitability of the vernacular concepts

Pre-requisites

Knowledge of Architectural Design

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4112.1	3	-	2	-	2	-	3	3	-	2
E4112.2	3	-	2	-	2	-	3	3	-	2
E4112.3	3	-	2	-	2	-	3	3	-	2
E4112.4	3	-	2	-	2	-	3	3	-	2
E4112.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE4112– VERNACULAR ARCHITECTURE

AAE4112		Elective – VERNACULAR ARCHITECTURE	L	T	P	C
THEORY			3	0	0	3
Unit I	INTRODUCTION TO VERNACULAR ARCHITECTURE					9 Hrs
Brief introduction to vernacular architecture in global context – concepts and approaches in the study of vernacular architecture.						3 6
Unit II	VERNACULAR ARCHITECTURE IN INDIAN CONTEXT					9 Hrs
The different vernacular architectural styles in India with examples.						1
Northern region –Kashmir Architecture,						1
Eastern region –						1
Bengal Architecture,						1
Western Region –						1
Gujarat and kutch architecture,						1
Rajasthan havelis,						1
Southern Region –						1
Kerala and Chettinadu Architecture.						1
Unit III	CONCEPTS AND PRINCIPLES IN VERNACULAR STYLE					9 Hrs
Study and understand the concepts and principles of Indian vernacular styles in terms of climate response, materials and indigenous construction techniques followed.						3 2 2 2
Unit IV	CASE STUDY OF AN IDENTIFIED SETTLEMENT					9 Hrs
Detailed study of a traditional settlement and analyzing in terms of the above discussed concepts and principles.						9
Unit V	SUITABILITY IN PRESENT CONTEXT					9 Hrs
Discussion on the Suitability of the vernacular concepts in present context with examples.						8
TOTAL HOURS						45

Suggested List of Students Activity:

1. Quiz
2. Group discussion

3. Seminar
4. Assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Vernacular Architecture of India- Traditional residential style and spaces	Tejinder S. Randhawa	INTACH (Indian National Trust for Art and Cultural Heritage), 2022
2.	Courtyard houses of India	Yatin Pandya	Mapin Publishing, First Edition,2022
3.	Wooden Architecture of Kerala	Miki Desai,	Mapin Publishing, First Edition,2018.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://youtu.be/_a-QGF4p__c
4	https://youtu.be/i8FeYc8u-Uc
5	https://youtu.be/dV2PwidGDoo

MODEL QUESTION PAPER**AAE4112 – VERNACULAR ARCHITECTURE****Time : 3 Hrs****Max.Marks : 100****PART- A (5 X 2 X 10 Marks = 100 Marks)**

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Discuss the various methodologies in the study of vernacular architecture.	I	U	E4112.1	1,3,5,7
	2.	Shelter derives from the concept of a single cell. Illustrate how this is manifested in various vernacular settlements from India.	I	R	E4112.1	1,3,5,7
	3.	Outline the Cultural and contextual responsiveness of vernacular architecture.	I	U	E4112.1	1,3,5,7
	4.	Explain the various approaches in the study of vernacular architecture	I	R	E4112.1	1,3,5,7
II	5.	Discuss the role of economy, colour, symbolism & materials in the Chettinadu Architecture.	II	R	E4112.2	1,3,5,7
	6.	Write in detail the planning concepts and construction details of any one haveli of Rajasthan with sufficient sketches.	II	U	E4112.2	1,3,5,7
	7.	Outline the nature of vernacular dwelling in the various cultural and geographical regions of the state of Kashmir.	II	U	E4112.2	1,3,5,7
	8.	Explain about the architectural characters of traditional Kerala houses.	II	R	E4112.2	1,3,5,7
III	9.	Explain the importance of aesthetic dimensions in understanding the essence of vernacular architecture.	III	R	E4112.3	1,3,5,7
	10.	Enumerate the anthropological Study of vernacular architecture.	III	U	E4112.3	1,3,5,7
	11.	Explain about the different concepts of vernacular architecture.	III	R	E4112.3	1,3,5,7
	12.	Discuss about the role of climate and usage of materials in vernacular architecture.	III	U	E4112.3	1,3,5,7

IV	13.	Explain “Nallukettu” planning principles.	IV	R	E4112.4	1,3,5,7
	14.	Discuss about the Pondicherry diverse as a settlement.	IV	R	E4112.4	1,3,5,7
	15.	Explain about the Traditional Bangla Architecture.	IV	U	E4112.4	1,3,5,7
	16.	Explain about the building materials used for vernacular style architecture.	IV	U	E4112.4	1,3,5,7
V	17.	Compare and discuss on the house typologies in Cochin with sketches.	V	R	E4112.5	1,3,5,7
	18.	How did the colonial bungalow' derive from the traditional bungalow"? Outline its evolution and illustrate adequately with sketches.	V	R	E4112.5	1,3,5,7
	19.	Outline any seven colonial influences on the Tradition Goan house.	V	U	E4112.5	1,3,5,7
	20.	Explain about any two-house typologies influenced by western architecture	V	R	E4112.5	1,3,5,7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

ELECTIVE - I**AAE4113 – PROFESSIONAL PRACTICE**

Programme Name : ARCHITECTURAL ASSISTANTSHIP

(SW)

Course Code : AAE4113

Semester : IV SEMESTER

Course Title : PROFESSIONAL PRACTICE

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
PROFESSIONAL PRACTICE	3	45	40	100*	100	3 Hrs

Examinations will be conducted for 100 marks and will be converted to 60 marks*TOPICS AND ALLOCATION OF HOURS**

Unit	Topics	Time (Hrs)
I	ARCHITECT AND HIS SERVICES	9
II	RULES AND REGULATIONS OF THE ARCHITECTURE PROFESSION	9
III	TENDER AND CONTRACT	9
IV	PROJECT MANAGEMENT	9
V	ELEMENTARY ACCOUNTANCY	9
Total		45

COURSE DESCRIPTION

The knowledge of this subject is required for all engineer/technicians who wish to choose industry/field as their career. This course is designed to develop understanding of various functions of management, role of workers and architects' services, which are essential attributes for a successful technician.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- To know about the role of Architects in the planning and execution of a project
- To know about how to start the construction work through tender and contract.
- To understand the various types of Architectural services
- To know how to scheduling in construction field by using CPM, PERT network techniques
- To gain knowledge about the banking accounts

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4113.1	Apply the knowledge to calculate of architect fees
E4113.2	Understand the role of COA, role of IIA and Architectural design competition
E4113.3	Analyze the legal aspects in construction projects
E4113.4	Demonstrate the various types of projects, modern construction techniques and exhibit the mastery in construction planning, scheduling and various controls.
E4113.5	Apply the elementary accountancy in professional practice

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4113.1	3	-	2	-	2	-	3	3	-	2
E4113.2	3	-	2	-	2	-	3	3	-	2
E4113.3	3	-	2	-	2	-	3	3	-	2
E4113.4	3	-	2	-	2	-	3	3	-	2
E4113.5	3	-	2	-	2	-	3	3	-	2
E4113 Total	15	-	10	-	10	-	15	15	-	10
Correlation level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, Power Point presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz /MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two

questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE4113 – PROFESSIONAL PRACTICE

AAE4113		Elective - PROFESSIONAL PRACTICE	L	T	P	C
THEORY			3	0	0	3
Unit I	ARCHITECT AND HIS SERVICES					9 Hrs
Definition of an architect –Role of an architect in the planning and execution of projects						2
Schedule of fees for various type of projects –						2
Normal services, additional services and special services						1
Various stages for the fees collection						2
Calculation of architect’s fees for various types of buildings						2
Unit II	RULES AND REGULATIONS OF THE ARCHITECTURE PROFESSION					9 Hrs
Professional Code of conduct – Architect’s Act 1972 –						2
Architectural design competition						2
Apartment and Flats act –						1
Easement rights in the context of buildings –						1
The role of council of architecture, India –						1
The role of Indian institute of architects –						1
Builders and Promoters – Arbitration.						1
Unit III	TENDER AND CONTRACT					9 Hrs
Invitation of tender – Condition of tender –						1
Types of tenders – Tender documents –						1
Scrutiny and acceptance of tender –						1
Work order Various forms of contracts – Agreements – Conditions of contract –						1
Legal aspects Completion period –						1
Maintenance period Advantages and disadvantages of various types of contracts –						1
M-book –M-book entry,						1
Check measurements Preparation of bills –						1
Payments – Penal actions and penalties for defaults and delays.						1
Unit IV	PROJECT MANAGEMENT					9 Hrs
Introduction to Project Management –						1
Advantages of Project Management, need and scope of Project management –						2
Construction schedules – Bar charts, Mile stone charts,						1
CPM and PERT-Event, Activity, Duration, Float, Slack, Range, Variance. networks –						1
Advantages of Network –						1
Comparison of CPM and PERT Numbering and forming the network						1
Tracing the critical path for simple problems						2

Unit V	ELEMENTARY ACCOUNTANCY	9 Hrs
Classification of Banks –		1
Various types of bank accounts –		1
Various forms of deposits-FD, RD, Bond,		1
Chit and Shares –Withdrawal – Demand Draft –E Mail transfer –		1
Cheque, crossing of cheques, payment through cheque –		1
Transaction through ATM – Credit Card and Debit Cards –		1
Introduction to e- Banking -Maintenance of accounts –		1
Receipts and Vouchers –		1
Formalities related to avail a housing loan from a Govt. authorized bank–Building insurance scheme.		1
TOTAL HOURS		45

Suggested List of Students Activity:

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Professional Practice for Architecture	S C Garg & Yogesh K Garg	2024th edition , Satya Prakashan, 2014.
2.	Proffessional Practice: With Elements of Estimating, Valuation, Contract and Arbitration	Roshan H Namavathi	First Edition,Lakhani Book Depot, 2016
3.	Ethics for Architects:	Thomas Fisher	50 Dliemmas of Professional Practice, 48911th edition, Princeton Architectural Press,2010.

Web-based/Online Resources

S.No	Website/Links
1	https://nptel.ac.in/
2	https://youtu.be/aGdPq2IATKM
3	https://ndl.iitkgp.ac.in/

MODEL QUESTION PAPER**AAE4113 – PROFESSIONAL PRACTICE****Time : 3 Hrs****Max.Marks : 100****PART- A (5 X 2 X 10 Marks = 100 Marks)**

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Explain in detail the role of an architect in the planning of project.	I	U	E4113.1	1,3,5,7
	2.	Explain the calculation of architect's fees for various types of building.	I	R	E4113.1	1,3,5,7
	3.	Calculate the schedule of fees for a school building costing Rs. 60, 00,000/-	I	U	E4113.1	1,3,5,7
	4.	Explain the role of an architect in the execution of project.	I	R	E4113.1	1,3,5,7
II	5.	Explain about apartment and flat act.	II	R	E4113.2	1,3,5,7
	6.	Elaborate about the architectural design competitions.	II	U	E4113.2	1,3,5,7
	7.	Explain the salient features of architectural act 1972.	II	U	E4113.2	1,3,5,7
	8.	Discuss about the role of Builders and Promoters.	II	R	E4113.2	1,3,5,7
III	9.	Explain different types of contracts with their merits and demerits.	III	R	E4113.3	1,3,5,7
	10.	Explain the procedure for preparation, examination and payment of bill for work done.	III	U	E4113.3	1,3,5,7
	11.	Explain about the articles of agreement in contract.	III	R	E4113.3	1,3,5,7
	12.	Explain about the various types of tenders.	III	U	E4113.3	1,3,5,7
IV	13.	Enumerate the advantages of CPM and PERT networks	IV	R	E4113.4	1,3,5,7

	14.	A construction project involves the following activities. Draw the network diagram. Mark the critical path. What is the project time?	IV	R	E4113.4	1,3,5,7																				
		<table><tr><td>Activity</td><td>0-1</td><td>0-2</td><td>1-3</td><td>2-3</td><td>3-4</td><td>4-5</td><td>4-6</td><td>5-6</td><td>2-6</td></tr><tr><td>Duration (Days)</td><td>18</td><td>4</td><td>5</td><td>4</td><td>6</td><td>6</td><td>8</td><td>8</td><td>12</td></tr></table>	Activity	0-1	0-2	1-3	2-3	3-4	4-5	4-6	5-6	2-6	Duration (Days)	18	4	5	4	6	6	8	8	12				
Activity	0-1	0-2	1-3	2-3	3-4	4-5	4-6	5-6	2-6																	
Duration (Days)	18	4	5	4	6	6	8	8	12																	
	15.	Enumerate the disadvantages of CPM and PERT networks	IV	U	E4113.4	1,3,5,7																				
	16.	Explain about the advantages of project management.	IV	U	E4113.4	1,3,5,7																				
V	17.	Explain various types of bank deposits with their merits and demerits	V	R	E4113.5	1,3,5,7																				
	18.	Write the formalities related to avail a housing loan from a government authorized bank.	V	R	E4113.5	1,3,5,7																				
	19.	Explain various types of bank accounts.	V	U	E4113.5	1,3,5,7																				
	20.	Explain the formalities related to avail the building insurance scheme.	V	R	E4113.5	1,3,5,7																				

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

ELECTIVE - I

AAE4114 – TOWN PLANNING

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4114

Semester : IV SEMESTER

Course Title : TOWN PLANNING

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
TOWN PLANNING	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	TOWN PLANNING PRINCIPLES, SURVEYS & ZONING	9
II	HOUSING & SLUMS	9
III	PUBLIC BUILDINGS, PARKS AND PLAY GROUNDS, MASTER PLAN	9
IV	URBAN ROADS AND TRAFFIC MANAGEMENT	9
V	BUILDING BYE-LAWS AND MISCELLANEOUS TOPICS	9
Total		45

COURSE DESCRIPTION

Some percentage of students finds employment in the State Department of town and country planning Housing Autonomous and Urban Development authorities. Students are expected to prepare master plan and layout of housing schemes, road, parking, etc. Therefore, the course in Town Planning equips the student with appropriate knowledge to perform above said functions. While teaching these subject teachers should show some of the typical master plan and layout plan to bring conceptual clarity in the mind of students.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understand the principle of Town planning and surveys.
- Study the requirements of housing and slums.
- Study the requirement of public buildings, parks and playgrounds.
- Preparation of Master plan and Re-planning of existing Towns.
- Knows about Building bye laws and other miscellaneous topics.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4114.1	Understand the tools of Town Planning and provide the various features of Zoning.
E4114.2	Analyze the various aspects of Housing and slums.
E4114.3	Analyze the different aspects of public buildings with emphasis on Town Center
E4114.4	Demonstrate different features of Traffic management and explain various aspects of urban roads.
E4114.5	Apply the Building Bye Laws for Residential, Public Building and Transport Planning.

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4114.1	3	-	2	-	2	-	3	3	-	2
E4114.2	3	-	2	-	2	-	3	3	-	2
E4114.3	3	-	2	-	2	-	3	3	-	2
E4114.4	3	-	2	-	2	-	3	3	-	2
E4114.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation	3	-	2	-	2	-	3	3	-	2

level										
-------	--	--	--	--	--	--	--	--	--	--

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.
-

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:I.	1
	2
	3
	4
II.	5
	6
	7
	8
III.	9
	10
	11
	12
IV.	13
	14
	15
	16
V.	17
	18
	19
	20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE4114 – TOWN PLANNING

AAE4114		Elective – TOWN PLANNING	L	T	P	C
THEORY			3	0	0	3
Unit I	TOWN PLANNING PRINCIPLES, SURVEYS & ZONING					9 Hrs
1.1 TOWN PLANNING PRINCIPLES						
General - evolution of planning-objects of town planning - Economic justification for town planning - principles of Town planning –						1
Necessity of town planning -origin of towns -growth of towns - stages in town development - personality of town -Distribution of land uses -Forms of planning - site for an ideal Town - Requirements of new Towns -Planning of the modern Town - Powers required to enforce T.P. schemes –						1
cost of Town planning - present position of Town Planning in India						1
1.2 SURVEYS						
General – Necessity - collection of Data - Types of surveys - Uses of surveys.						1
1.3 ZONING						
Meaning of the term - Uses of land – objects -principles of Zoning –						1
Advantages of Zoning - Importance of Zoning –						1
Aspects of Zoning -Transition Zone - Economy of Zoning –						1
Zoning powers - Maps for Zoning.						
Unit II	HOUSING & SLUMS					9 Hrs
2.1 HOUSING						
General - Importance of housing - Demand for houses - Building site –						1
Requirements of residential buildings - Classification of residential buildings –						1
Design of residential areas –						1
Rural Housing-Agencies for housing-Investment in housing - HUDCO – CIDCO – Housing problem in India.						1
2.2 SLUMS						
General - Causes of slums - Characteristics of slums –						1
Effects of slums-Slum clearance.						1

Works of improvement -Open plot scheme –	1
Slum clearance and rehousing -Prevention of slum formation –	1
Resources for slum clearance programmes -The Indian slum.	1

Unit III	PUBLIC BUILDINGS, PARKS AND PLAY GROUNDS, MASTER PLAN	9 Hrs
3.1 PUBLIC BUILDINGS		
General - Location of Public Buildings – Classification of public Buildings –		1
Principles of design in public buildings - Town centre - Grouping of public buildings - Civic aesthetics		1
3.2 PARKS AND PLAY GROUNDS		
General - Types of recreation - Location of urban green spaces –		1
classification of parks - park systems - park design –		1
Finance of parks-parkways –playgrounds - space standards-Landscape architecture.		1
3.3 MASTER PLAN		
General – Objects – Necessity - Data to be collected –		1
Drawings to be prepared - Features of master plan -Planning standards –		
Report-stages of preparation - Method of Execution-conclusion		1
3.4 RE-PLANNING EXISTING TOWNS		
General - Objects of re-planning - Defects of existing towns - Data to be Collected -		1
Urban renewal projects – Decentralization - Garden city - Surface drains - Refuse of Town.		1
Unit IV	URBAN ROADS AND TRAFFIC MANAGEMENT	9 Hrs
4.1 URBAN ROAD		
General – Objects - Requirements of good city road - Factors to be considered -		1
Classification of urban roads - Types of street systems - Through and By -pass roads -		1
Outer and inner ring roads – Expressways – Freeways –Precincts - Road aesthetics		1
4.2 TRAFFIC MANAGEMENT		
General –Object - Traffic survey - Traffic congestion - Traffic control –		1
Road junction -Parking - Traffic capacity of road - Road traffic problems –		2
Road accident - Traffic signal – Road sign – Road marking –		1
Street lighting in a town -Traffic problem of existing towns –		1
Peculiarities of traffic–multimodal hub.		1
Unit V	BUILDING BYE-LAWSAND MISCELLANEOUS TOPICS	9 Hrs
5.1 BUILDING BYE-LAWS		
General - Objects of bye-laws - importance of bye-laws - Function of local authority - Responsibility of owner-Applicability of bye-laws - set-back - Light plane - Floor space index –		1
Off-street parking - Fire protection - Minimum plot sizes - Some other terms - Principles underlying -building bye –laws –		2
Building bye-laws for residential area of a typical town planning scheme -Building bye-laws –		1
Development control rules - General rules of Metropolitan Area - CMDA Rules		1

5.2 MISCELLANEOUS TOPICS	1
Airports – Location - size - Noise control - Parts of an airports –	1
Betterment and compensation - city blocks conurbations -Cul-de-sac streets –	1
Focal point - Green belt - Public utility services Rapid transit – Remote sensing application –	1
urban planning using remote sensing – site suitability analysis Transportation planning.	
TOTAL HOURS	45

Suggested List of Students Activity:

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Architecture and Town Planning	Vaishali S Limaye	Nirali Prakashan,2022.
2.	Fundamentals of Town Planning	Aakash,	visionias,2022
3.	Town Planning	Rangwala	Charotar publishing house pvt ltd,2005

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://youtu.be/2F0Bdfb1GqY

AAE4114 – TOWN PLANNING

MODEL QUESTION PAPER

Time : 3 Hrs

Max.Marks : 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No.	Questions		Unit	Blooms Level	Course Outcom	Program Outcome
I	1.	Explain the Principles & necessity of Town Planning.	I	U	E4114.1	1,3,5,7
	2.	Enumerate the various types of surveys conducted for town-planning schemes.	I	R	E4114.1	1,3,5,7
	3.	Explain about the Residential Zone in a town.	I	U	E4114.1	1,3,5,7
	4.	Discuss about the commercial zone in a town.	I	R	E4114.1	1,3,5,7
II	5.	Explain about the Importance of Housing.	II	R	E4114.2	1,3,5,7
	6.	Enumerate the classification of residential buildings.	II	U	E4114.2	1,3,5,7
	7.	Explain the causes & effects of Slums.	II	U	E4114.2	1,3,5,7
	8.	Detail about the characteristics of slums.	II	R	E4114.2	1,3,5,7
III	9.	Explain the principles of design of public buildings.	III	R	E4114.3	1,3,5,7
	10.	Explain about the types of recreation in a town.	III	U	E4114.3	1,3,5,7
	11.	Explain the defects of existing towns.	III	R	E4114.3	1,3,5,7
	12.	Detail about the classification of parks.	III	U	E4114.3	1,3,5,7
IV	13.	Explain about the Objectives & Requirement of good city roads	IV	U	E4114.4	1,3,5,7
	14.	Explain the classification of Urban Roads.	IV	R	E4114.4	1,3,5,7
	15.	Briefly explain about Traffic management.	IV	U	E4114.4	1,3,5,7
	16.	Enumerate the types of recreation.	IV	U	E4114.4	1,3,5,7
V	17.	Detail about the Importance of Bye-law.	V	R	E4114.5	1,3,5,7
	18.	Explain the factors which are to be considered while selecting the site for an airport in a town.	V	R	E4114.5	1,3,5,7
	19.	Detail about the principles underlying bye law.	V	U	E4114.5	1,3,5,7
	20.	Enumerate the design of street lighting in a town	V	U	E4114.5	1,3,5,7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

ELECTIVE - I**AAE4115 – HUMAN SETTLEMENT AND PLANNING**

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4115

Semester : IV SEMESTER

Course Title : HUMAN SETTLEMENT AND
PLANNING

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION**No. of weeks per semester: 15 weeks**

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
HUMAN SETTLEMENT AND PLANNING	3	45	40	100*	100	3 Hrs

Examinations will be conducted for 100 marks and will be converted to 60 marks*TOPICS AND ALLOCATION OF HOURS**

Unit	Topics	Time (Hrs)
I	INTRODUCTION	8
II	FORMS OF HUMAN SETTLEMENTS	9
III	PLANNING CONCEPTS	10
IV	URBAN PLANNING AND URBAN RENEWAL	10
V	ISSUES IN CONTEMPORARY URBAN PLANNING IN INDIA	8
Total		45

COURSE DESCRIPTION

This course focuses on the review of origin of human settlements to the level of understanding the various town planning problems. While teaching these subject teachers should show some of the typical master plan and layout plan to bring conceptual clarity in the mind of students.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- To have an overview on the vocabulary of Human settlements
- To understand the various elements of Human Settlements and the classification of Human Settlements
- To familiarize the students with Planning concepts and process in Urban and Regional Planning.
- To expose the students to the history and development of planning, its relevance and application to Modern day principles of town planning.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4115.1	Understand the Elements of Human Settlements.
E4115.2	Analyze the Structure and form of Human settlements.
E4115.3	Analyze the Planning concepts and their relevance to Indian Planning practice.
E4115.4	Interpret the Scope, Content and regulations of Urban Planning.
E4115.5	Analyze The Issues in Contemporary Urban Planning in India

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4115.1	3	-	2	-	2	-	3	3	-	2
E4115.2	3	-	2	-	2	-	3	3	-	2
E4115.3	3	-	2	-	2	-	3	3	-	2
E4115.4	3	-	2	-	2	-	3	3	-	2
E4115.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two

questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE4115 – HUMAN SETTLEMENT AND PLANNING

AAE4115		Elective – HUMAN SETTLEMENTS AND PLANNING	L	T	P	C
THEORY			3	0	0	3
Unit I	INTRODUCTION					8 Hrs
Elements of Human Settlements, human beings and settlements, nature shells& Network, their functions and Linkages.						1
Locational, Resource based, Population size & Occupational structure.						1
						3
						3
Unit II	FORMS OF HUMAN SETTLEMENTS					9 Hrs
Structure and form of Human settlements –						2
Linear, non-linear and circular,						1
reasons for development,						1
advantages and disadvantages,						1
case studies.						2
Factors influencing the growth and decay of human settlements.						2
Unit III	PLANNING CONCEPTS					10 Hrs
Planning concepts and their relevance to Indian Planning practice in respect of Ebenezer Howard -Garden city concepts and contents,						2
Patrick Geddes –						1
Conservative surgery & case study,						1
C.A. Perry –						2
Neighborhood concept,						1
Le Corbusier - concept and case studies.						1
Unit IV	URBAN PLANNING AND URBAN RENEWAL					10 Hrs
Scope and Content of Master plan,						2
Planning area, land use plan and Zoning regulations,						1
Zonal plan, linkage to master plan and land use plan.						1
Planned unit development (PUD) & need,						1
applicability and development regulations,						1
Urban Renewal Plan Meaning, Redevelopment,						1
Rehabilitation and Conservation,						1
JNNURM & case studies.						2

Unit V	ISSUES IN CONTEMPORARY URBAN PLANNING IN INDIA	8 Hrs
Globalization and its impact on city,		1
Urbanization,		1
emergence of new forms of developments,		2
self-sustained communities,		1
Transit oriented development,		1
Integrated townships.		1
		1
TOTAL HOURS		45

Suggested List of Students Activity:

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	'Human Settlements- A Planning guide to Beginners'	K R Thooyavan	M.A.Publications, 2005.
2.	Sustainable Human Settlements within the Global Urban Agenda	David Simon	Agenda Publishing, 2023
3.	Planning Indian Megacity Regions: Spatial Model, Development Dynamics and Future Advances	S K Kulshrestha	2022 Edition, Springer Velag, 2022.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://youtu.be/iRWHppAVyy4

MODEL QUESTION PAPER

AAE4115 – HUMAN SETTLEMENT AND PLANNING

Time : 3 Hrs

Max.Marks : 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

PART – A (10X10=100 MARKS)						
UNIT	Answer two questions from each unit.		Unit	Blooms Level	Course Outcome	Program Outcomes (PO)
I	1.	Elaborate the evolution of planning as a discipline.	I	U	E4115.1	1,3,5,6,7
	2.	Explain the factors of human settlement for each with a flowchart.	I	R	E4115.1	1,3,5,6,7
	3.	Explain the Principle of Ekistics.	I	U	E4115.1	1,3,5,6,7
	4.	Detail out the Elements of Human Settlements.	I	R	E4115.1	1,3,5,6,7
II	5.	Elaborate the classification of Indian towns based on their evolution with examples.	II	R	E4115.2	1,3,5,6,7
	6.	Enumerate the aspects that determine whether an area is urban or rural?	II	U	E4115.2	1,3,5,6,7
	7.	Explain the factors influencing the growth of human settlements.	II	U	E4115.2	1,3,5,6,7
	8.	Enumerate the factors influencing the decay of human settlements.	II	R	E4115.2	1,3,5,6,7
III	9.	Explain about Multiple Nuclei Model with a case study.	III	R	E4115.3	1,3,5,6,7
	10.	Explain Grid Iron Form of city growth with a case study.	III	U	E4115.3	1,3,5,6,7
	11.	Explain the planning concepts of Le Corbusier with case studies.	III	R	E4115.3	1,3,5,6,7
	12.	Discuss the features of Neighborhood concept.	III	U	E4115.3	1,3,5,6,7
IV	13.	Elaborate on the process of preparation of a master plan along with eight step frameworks.	IV	Ap	E4115.4	1,3,5,6,7
	14.	Elaborate the concept of urban rehabilitation with a case study.	IV	R	E4115.4	1,3,5,6,7
	15.	Explain PUD, discuss its need and applicability and development regulations of Chennai.	IV	U	E4115.4	1,3,5,6,7
	16.	Enumerate the classification of towns and cities in India.	IV	U	E4115.4	1,3,5,6,7

V	17.	Detail any one urban issue with an Indian case study.	V	R	E4115.5	1,3,5,6,7
	18.	Explain the concept of Smart City with a case study.	V	R	E4115.5	1,3,5,6,7
	19.	Define urban renewal, elaborate the process with a case study.	V	U	E4115.5	1,3,5,6,7
	20.	Enumerate the concept of Integrated townships	V	Ap	E4115.5	1,3,5,6,7

Note: The question paper setters are requested to follow the revised Bloom's Taxonomy levels as presented below:

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

ELECTIVE - 2**AAE4241– ARCHITECTURAL MODEL MAKING**

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4241

Semester : IV SEMESTER

Course Title : ARCHITECTURAL MODEL MAKING

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ARCHITECTURAL MODEL MAKING	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	SOLID MODELLING	10
II	BLOCK MODELLING	15
III	FURNITURE MODELLING	15
IV	BUILDING INTERIOR COMPONENTS	15
V	DETAILED MODEL	20
Total		75

COURSE DESCRIPTION

In Diploma level Architectural Assistantship development of auto motor skills plays a vital role. The auto motor skill development can be achieved by on hand experience in handling various instruments, apparatus and equipment for preparation of architectural models to the various building elements and buildings. This is accomplished by doing architectural models related to building elements and buildings of different types in architectural workshop. Further the students will guide in making architectural models for their project work.

COURSE OBJECTIVE:

At the completion of the study, the students will be able

- To develop architectural ideas and can be used at all stages of design. An architectural model shows the scale and physical presence of a proposed design.
- To create 3-dimensional replica or expression of the design, usually at a scale much smaller than full size. Traditionally, architectural models were made exclusively by hand using materials such as foam board, balsa wood and card.
- To develop a presentation model to explain the project in detail and can be used to exhibit, visualize a final design.
- To understand and apply a variety of three-dimensional model construction process and techniques
- To explore the value of physical models as an integral part of a design process for both academic and professional contexts.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4241.1	Develop the solid modelling
E4241.2	Build the block modelling for scale proportion.
E4241.3	Apply the ideas of furniture modelling
E4241.4	Apply the ideas of furniture modelling
E4241.5	Develop the building model (landscape and exterior features) and to develop mini project with report

Pre-requisites

Knowledge of basic science

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4241.1	2	-	2	-	3	-	3	3	-	2
E4241.2	2	-	2	-	3	-	3	3	-	2
E4241.3	2	-	2	-	3	-	3	3	-	2
E4241.4	2	-	2	-	3	-	3	3	-	2
E4241.5	2	-	2	-	3	-	3	3	-	2
Total	10	-	10	-	15	-	15	15	-	10
Correlation level	2	-	2	-	3	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Engage and Motivate: Instructors should actively engage students to boost their learning confidence.
- Real-World Relevance: Incorporate relatable, real-life examples and engineering applications to help students understand and appreciate course concepts.
- Interactive Learning: Utilize demonstrations and plan interactive student activities for an engaging learning experience.
- Application-Based Learning: Employ a theory-demonstrate-practice-activity strategy throughout the course to ensure outcome-driven learning and employability.
- Simulation and Real-World Practice: Conduct demonstrations and hands-on activities in a simulated environment, transitioning to real-world scenarios when possible.
- Encourage Critical Analysis: Foster an environment where students can honestly assess experiment outcomes and analyse potential sources of error in case of discrepancies

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 4	Ex. 5 to 7	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.
Practical documents should be maintained for every exercise / experiment immediately

after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From 2 To 6 That Are Done in Studio	40
B	PART B -Model of Residential Building of Area 60 sq.m	50
C	Viva voce	10
TOTAL		100

AAE4241 – ARCHITECTURAL MODEL MAKING

AAE4241	Elective - ARCHITECTURAL MODEL MAKING	L	T	P	C
PRACTICUM		1	0	4	3
NOTE: Both drawings and models are to be prepared to all the exercises and evaluated for awarding internal marks.					
Unit I	SOLID MODELLING				10 Hrs
Basic Geometrical shapes – Cube, Cylinder,					5
Cone, Sphere, pyramids, Prism.(Based on development of surface)					5
Unit II	BLOCK MODELLING				15 Hrs
Building Modelling–(To express scale proportion and color)					5
Snack bar, Cafeteria,					5
Shop, Ice cream parlour.					5
Unit III	FURNITURE MODELLING				15 Hrs
Chairs, Sofa, dining table, Cot,					5
Cabinets, Dressing table, wall units, (Built in units),					5
Kitchen units etc.					5
Unit IV	BUILDING INTERIOR COMPONENTS				15 Hrs
Staircase, Partition,					5
Ward robe, Room Divider,					5
Windows					5
Unit V	DETAILED MODEL				20 Hrs
A building model to express site, landscape, road, and exterior features.					20
TOTAL HOURS					75

S.NO	LIST OF EXERCISES
1	Prepare development surface and model for solids cube, cone cylinder and prism, pyramid using Snow white board / mount board.
2	Prepare plan, elevation section and block model for snack bar, cafeteria, and ice cream parlour using mountboard.
3	Prepare plan, elevation section and model for furniture's like sofa, dining table & chair using mount board / snow whiteboard.
4	Prepare plan, elevation and block model for a spiral staircase using mount board.
5	Prepare plan, elevation, section and model for a wardrobe and room divider using mount board/ snow whiteboard.
6	Prepare plan, elevation section and model for a paneled bay window using mount

	board / snow whiteboard.
7	Prepare plan, elevation section and model for a residential building of area 100 sq.m. With full landscape & exterior finishes using mount board / snow white board.

Suggested List of Students Activity:

- Each student should submit activity related to model that are interesting and connects with architecture

List of Equipment's:

Drafting Table with stool	-	Each 1 per student
Pinner board	-	1 No

Text Books

Sl.No	Title	Author	Publisher with Edition
1.	Architectural model making	Nick Dunn	Laurence King Pub, 2014
2.	Architectural model building	Roark T.Congdon	Fairchild Publications,2010
3.	Model making	Megan Werner	Princeton Architectural Press,2011
4.	Studio craft and techniques of architects	Miriam Delaney	Laurence King Publishing,2022
5.	Model making materials and methods	David Neat	The Crowood Press Ltd, 2023

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/

AAE4241 – ARCHITECTURAL MODEL MAKING

MODEL QUESTION PAPER

Part-A : Answer the Question Which Carry 40 Marks (By lot)

Part-B : Answer the Question Which Carry 50 Marks (By lot)

Si. No	Name of the Experiments	CO	PO
	PART- A (40 Marks)		
1	Draw the details of a sofa and prepare model for the same using snow white board. Assume suitable scale and dimensions. (Question is chosen by lot.)	E4241.3	1,3,5,7
	PART-B (50 Marks)		
2	Prepare the Model of a residential building of area 60 sq.m. With full landscape & exterior finishes using mount board / snow white board	E4241.5	1,3,5,7
	Viva-voce – 10 marks		

ELECTIVE - 2**AAE4242– FURNITURE DESIGN**

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4242

Semester : IV SEMESTER

Course Title : FURNITURE DESIGN

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION**No. of weeks per semester: 15 weeks**

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
FURNITURE DESIGN	5	75	40	100*	100	3 Hrs

Examinations will be conducted for 100 marks and will be converted to 60 marks*TOPICS AND ALLOCATION OF HOURS**

Unit	Topics	Time (Hrs)
I	HISTORY & CONCEPTS OF FURNITURE DESIGN	20
II	MATERIALS & MANUFACTURING IN FURNITURE DESIGN	15
III	FURNITURE DESIGNERS	15
IV	DRAWING AND DESIGNING FURNITURE	25
Total		75

COURSE DESCRIPTION

Furniture Design program focuses on training professionals to actively engage in/ with the rapidly growing furniture industry. The Indian furniture market has been positively impacted by increasing urbanization, a younger demographic, rising disposable incomes and the growth of the office and hospitality sectors amongst others. Whilst design, functionality and affordability continue to remain key drivers, increasing expectations on quality and sustainable practices will direct new opportunities

COURSE OBJECTIVE:

At the completion of the study, the students will be able

- Understand the dimensions and the availability of designs used for furniture based on of ergonomics applied to furniture design that related end-user needs.
- Importance of site and its characteristics in architecture.
- Interpret various propositions and considerations in the furniture sector.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4242.1	Understand the history & concepts of furniture design.
E4242.2	Familiar with the materials used in furniture design.
E4242.3	Get knowledge about the manufacturing process of furniture design.
E4242.4	know about the furniture designers.
E4242.5	Develop drawing and designing furniture

Pre-requisites

Basics of Design

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4242.1	2	2	3	-	3	-	3	3	-	2
E4242.2	2	2	3	-	3	-	3	3	-	2
E4242.3	2	2	3	-	3	-	3	3	-	2
E4242.4	2	2	3	-	3	-	3	3	-	2
E4242.5	2	2	3	-	3	-	3	3	-	2
E4242 Total	10	10	15	-	15	-	15	15	-	10
Correlation level	2	2	3	-	3	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of dimension, detailing, scale and its application in Site Planning.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 5	Ex. 6 to 10	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	40
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	50
C	Viva voce	10
TOTAL		100

AAE4242 – FURNITURE DESIGN

AAE4242		Elective – FURNITURE DESIGN	L	T	P	C
PRACTICUM			1	0	4	3
Unit I	HISTORY & CONCEPTS OF FURNITURE DESIGN					15 Hrs
History of furniture from early days to industrial revolution –						
Study of various Furniture styles –						1
Exploring new emerging furniture concepts: space saving, modular, flexible and similar types.						2
Exercise 1: Details of various Furniture styles						2
Exercise 2: Details of new emerging furniture concepts for space saving, modular, flexible types.						5
Exercise 2: Details of new emerging furniture concepts for space saving, modular, flexible types.						5
Unit II	MATERIALS & MANUFACTURING IN FURNITURE DESIGN					20 Hrs
Bentwood, tubular steel, plywood, chipboard, plastics, paper - Its properties, applications and designers who patronized them –						5
Manufacturing processes: Injection Molding, Investment casting, Sheet metal work, Die casting, Blow- molding, Vacuum – Forming, etc.						5
Exercise 3: Details of various Furniture materials with its properties, applications and designers who patronized them						5
Exercise 4: Details of Manufacturing processes						5
Unit III	FURNITURE DESIGNERS					20 Hrs
Marcel Bruer, Harry Bertoia, Mario Bellini, John Cobb, Gio Ponti, Arne Jacobsen, Florence Knoll, Ross Lovegrove, Mackintosh, Philippe Starck, Karim Rashid.						2
Exercise 5: works of Marcel Bruer, Harry Bertoia, Mario Bellini						3
Exercise 6: works of Florence Knoll, Ross Lovegrove, Mackintosh						5
Exercise 7: works of Mackintosh, Philippe Starck, Karim Rashid.						5
Unit IV	DRAWING AND DESIGNING FURNITURE					20 Hrs
Furniture categories - Design approaches in furniture design – Ergonomics basics –						2
Measured drawing of a piece of furniture - Plan, elevation and drawings on full scale - measuring and drawing to scale - Reduction and enlargement of drawings.						3
Exercise 8: Details on Furniture categories						5
Exercise 9: Details of Ergonomics						5
Exercise 10: Prepare a measured drawing of a piece of furniture						5
TOTAL HOURS						75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

Sl.No	Title	Author	Publisher with Edition
1.	Furniture Design: An Introduction to Development	Stuart Lawson	Laurence King Publishing, 2013
2.	Design of the 20th Century	Charlotte Fiell & Peter Fiell	Taschen America Lic, 2012
3.	The Furnishing Handbook	Frida Ramstedt,	Particular books, 2024

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/

AAE4242 – FURNITURE DESIGN

MODEL QUESTION PAPER

Part-A : Answer the Question Which Carry 40 Marks (By lot)

Part-B : Answer the Question Which Carry 50 Marks (By lot)

Duration : 3 Hrs

Max. Marks: 100

Note: Answer all the questions

Si. No	Questions	CO	PO
PART- A (40 Marks)			
1	Draw the new emerging furniture concepts for space saving, modular, flexible types.	E4242.1	1,2,3,5,7
PART-B (50 Marks)			
2	Draw the works of Florence Knoll, Harry Bertoia	E4242.3	1,2,3,5,7
	Viva-voce – 10 marks		

ELECTIVE - 2**AAE4243 – SITE PLANNING**

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4243

Semester : IV SEMESTER

Course Title : SITE PLANNING

Course Type : PRACTICAL

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
SITE PLANNING	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION	15
II	SITE ANALYSIS	15
III	DETAILED ANALYSIS	15
IV	SITE CONTEXT AND REGULATIONS	15
V	SITE LAYOUT AND DEVELOPMENT	15
Total		75

COURSE DESCRIPTION

This course examines site planning as a process of creating the built environment. The elements, a site planner considers are diverse and include site hydrology, soils, vegetation, topography, uses, building arrangement and form, access, regulation, markets, and local community priorities. In this class, students will review historical and contemporary theories of urban design. Over the course of the semester, working in teams, students will conduct a site analysis and propose a site plan for a hypothetical mixed-use development.

COURSE OBJECTIVE:

On successful completion of this course, the student will be able to

- Importance of site and its characteristics in architecture.
- Determining factors which govern the siting of a given project.
- Appropriate site analysis techniques and methodology of preparing a site analysis diagram.
- Understanding the site context and regulations

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4243.1	Understand The Definition of Site Planning Elements
E4243.2	Know About the Need of Site Analysis
E4243.3	Analyse Contour and Selection criteria for siting of Various Types of Building
E4243.4	Understanding the site context and regulations
E4243.5	Develop Site Layout Considering the Topography and Other Site Features

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4243.1	2	2	3	-	3	-	3	3	-	2
E4243.2	2	2	3	-	3	-	3	3	-	2
E4243.3	2	2	3	-	3	-	3	3	-	2
E4243.4	2	2	3	-	3	-	3	3	-	2
E4243.5	2	2	3	-	3	-	3	3	-	2
E4243Total	10	10	15	-	15	-	15	15	-	10
Correlation level	2	2	3	-	3	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 5	Ex. 6 to 10	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	40
B	PART B - Any One of Exercise (By Lot) From Unit -3 ,4 & 5	50
C	Viva voce	10
TOTAL		100

AAE4243 – SITE PLANNING

AAE4243	Elective - SITE PLANNING	L	T	P	C
		1	0	4	3
Unit I	INTRODUCTION	15 Hrs			
Definitions - plot, site, land and region, units of measurements.					1
Introduction to methods of site surveys; Modern surveying Instruments and their application.					1
Need for surveying. Reading a technical drawing of site plan.					1
Exercise 1: Sketch the drawing of the site plan with technical details.					6
Exercise 2: Measure drawing of a small residential site plan.					6
Unit II	SITE ANALYSIS	15 Hrs			
Need of site analysis; Understanding topography, hydrology, soils, vegetation, climate, surface drainage, accessibility, size and shape, infrastructures available (a basic analysis of natural, cultural and aesthetic factors on and around a site).					2
Reading and preferably preparing site analysis drawings and diagrams.					1
Exercise 3: Prepare the site analysis for the residential project.					6
Exercise 4: Analyze the site feature and elements for residential project.					6
Unit III	DETAILED ANALYSIS	15 Hrs			
Contour analysis (ridges and valleys), slope analysis, grading process and criteria, functional and aesthetic considerations.					2
Selection criteria for the siting of various types of building typologies.					1
Exercise 5: Prepare the detailed site analysis for a school.					6
Exercise 6: draft the contour and slope for a small hilly area with a physical model.					6
Unit IV	SITE CONTEXT AND REGULATIONS	15 Hrs			
Contextualization of a site - existing surrounding land uses for cities.					2
The possible effect of a project on its surroundings. Suitable case studies of the same.					1
Exercise 7: Prepare a site analysis for a suitable case study.					6
Exercise 8: Detail of existing surrounding land uses for cities.					6
Unit V	SITE LAYOUT AND DEVELOPMENT	15 Hrs			
Exercise requiring siting of a given building typology, its planning for vehicular and pedestrian circulation;					2
planning of site utilities, drainage and sewage disposal with consideration to topography and other site features.					2
Exercise 9: Detail of vehicular and pedestrian circulation in a site plan.					5
Exercise 10: Detail of drainage and sewage disposal with consideration to topography and other site features.					6
TOTAL HOURS					75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

Sl.No	Title	Author	Publisher with Edition
1	Design with Nature	Ian L Mcharg,	Kindle first Edition, Wiley, 2008
2	Site planning	Kevin Lynch	Literary Licensing, 2012
3	Site Analysis : Diagramming Information for Architectural Design	White T. Edward	Architectural Media Ltd, 2005

Web-based/Online Resources

S.No	Website/Links
1	https://youtu.be/7TXJV-Wa4?list=PLxHgC0UFNU4vfMkxqB19ABrZCgwr_Bjby
2	https://ndl.iitkgp.ac.in/
3	https://nptel.ac.in/

AAE4243 – SITE PLANNING**MODEL QUESTION PAPER**

Part-A : Answer the Question Which Carry 40 Marks (By lot)

Part-B : Answer the Question Which Carry 50 Marks (By lot)

Duration : 3 Hrs

Max. Marks: 100

Note: Answer all the questions

Si. No	Questions	CO	PO
PART- A (40 Marks)			
1	Draw the measure drawing of a small residential site plan.	E4243.1	1,2,3,5,7
PART-B (50 Marks)			
2	Draft the detail of vehicular and pedestrian circulation in a site plan.	E4243.5	1,2,3,5,7
	Viva-voce – 10 marks		

AAE4244 – LOW-COST BUILDING DESIGN AND TECHNIQUES

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE4244

Semester : IV SEMESTER

Course Title : LOW-COST BUILDING DESIGN AND
TECHNIQUES

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
LOW-COST BUILDING DESIGN AND TECHNIQUES	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION	10
II	MODULAR COORDINATION	15
III	LOW-COST BUILDING MATERIALS AND DETAILS	15
IV	COST CONTROL TECHNIQUES	15
V	CASE STUDY	20
Total		75

COURSE DESCRIPTION

This course examines the Low-cost building which enhances new concept which deals with effective budgeting and use of techniques which help in reducing the cost of construction by the use of locally available materials along with improved skills and technology without compromising the strength, performance and life of the structure.

COURSE OBJECTIVE:

The objective of the course is to

- Impart knowledge on various building materials, construction and execution techniques for designing low-cost buildings.
- Need and demand for low-cost buildings
- Study of Modular coordination in building design
- Appropriate construction techniques and methodology of preparing a low-cost building
- Learn the planning of building services and utilities.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4244.1	Know about the low-cost building components and materials.
E4244.2	Understand about the modular coordination in building design
E4244.3	Acquire knowledge about Low-Cost Building Materials and Details
E4244.4	Understanding the cost control techniques.
E4244.5	Analyse the cost-effective techniques with help of various case studies.

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4244.1	2	2	3	-	3	-	3	3	-	3
E4244.2	2	2	3	-	3	-	3	3	-	3
E4244.3	2	2	3	-	3	-	3	3	-	3
E4244.4	2	2	3	-	3	-	3	3	-	3
E4244.5	2	2	3	-	3	-	3	3	-	3
Total	10	10	15	-	15	-	15	15	-	15
Correlation Level	2	2	3	-	3	-	3	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of dimension, detailing, scale and its application in low-cost building design.

Each exercise of detailing shall be made clear to students before starting drafting

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Cycle I Exercises 50% Exercises	Cycle II Exercises Another 50% Exercises	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	30
C	Viva voce	10
TOTAL		100

AAE4244 – LOW-COST BUILDING DESIGN AND TECHNIQUES

AAE4244		LOW-COST BUILDING DESIGN AND TECHNIQUES	L	T	P	C
PRACTICUM			1	0	4	3
Unit I	INTRODUCTION					10 Hrs
Introduction to low-cost buildings,						2
building components influencing cost of buildings.						3
Need and demand for low-cost buildings, and the related issues and challenges.						5
Unit II	MODULAR COORDINATION					15 Hrs
Introduction to low-cost buildings,						3
building components influencing cost of buildings.						4
Need and demand for low-cost buildings,						4
and the related issues and challenges.						4
Unit III	LOW-COST BUILDING MATERIALS AND DETAILS					15 Hrs
Building construction detailing for cost reduction.						2
Application of Low-Cost Building Material and						2
Various Construction Techniques.						11
(Minimum 3 exercise by covering all the components)						
Unit IV	COST CONTROL TECHNIQUES					15 Hrs
Building cost control techniques, research and						5
Development by various organizations in the country and foreign countries to reduce the cost.						10
(Minimum 2 exercise by covering all the components)						
Unit V	CASE STUDY					20 Hrs
Case study of low-cost building projects in India with issues related to site, material, services, technology, and construction, and expectations of user.						20
(Minimum 2 exercise by covering all the components)						
TOTAL HOURS						75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.No	Title	Author	Publisher With Edition
1.	Low Cost Green Lumber Construction	Leigh W Seddon	Echo Point Books & Media,2021
2.	Practical Book of Building Design and Drawing	Niranjan Dilip Patil	Kindle Publications,2005
3.	Low – Cost Pole Building Construction	Ralphe Wolfe	Storey Publishing LLC.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT

MODEL QUESTION PAPER

AAE4244 – LOW-COST BUILDING DESIGN AND TECHNIQUES

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Draw the application of Low-Cost Building Material and its Various Construction Techniques.	E4244.3	PO1, PO2, PO3, PO5, PO7
PART-B (50 Marks)			
2	Analyze the Case study of low-cost building projects in India with issues related to site, material, services, technology, and construction, and expectations of user.	E4244.5	PO1, PO2, PO3, PO5, PO7
3	Viva-voce - 10 marks		

ELECTIVE - 2**AAE4245 – SPACE PLANNING**

Programme Name : ARCHITECTURAL

ASSISTANTSHIP (SW)

Course Code : AAE4245

Semester : IV SEMESTER

Course Title : SPACE PLANNING

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION**No. of weeks per semester: 15 weeks**

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
SPACE PLANNING	5	75	40	100*	100	3 Hrs

Examinations will be conducted for 100 marks and will be converted to 60 marks*TOPICS AND ALLOCATION OF HOURS**

Unit	Topics	Time (Hrs)
I	ANTHROPOMETRICS	14
II	SPATIAL PARAMETERS	16
III	DESIGN METHDODOLOGY	15
IV	VISUAL ANALYSIS	15
V	PROJECT	15
Total		75

COURSE DESCRIPTION

The primary objective of the course is to teach the skills required to produce effective design solutions. The student will study space planning of both commercial and residential installations. However, the emphasis of this class is placed on designing the spaces with ergonomic details.

COURSE OBJECTIVE:

The objective of the course is to

- Develop an understanding of various degrees of enclosure, various types of

relationship between spaces.

- Understand the various effects that could be created by manipulating the enclosing elements such as walls, roof etc.
- Design with relation to a human being with respect to size, shape, and color.
- Understand a human bodies and its various movements and to accommodate the same into design standards.
- Understand spatial parameters with respect to the function and implications inflicted regarding the same

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4245.1	Understand the relationship of human being with its environment and implement the study into design
E4245.2	Design spaces based on patterns of circulation, proximity and levels of privacy zones
E4245.3	Know about the different postures and positions with dimensions of the human body and will be able to recognize activities and relate the need of human measurements in the design principles.
E4245.4	Bring a relation with design principles and the human being using the design principle
E4245.5	Create a project in direct relation to this subject and hence be able to apply theoretical knowledge into practical construction

Pre-requisites

Basics of Design

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4245.1	2	2	3	-	3	-	3	3	-	2
E4245.2	2	2	3	-	3	-	3	3	-	2
E4245.3	2	2	3	-	3	-	3	3	-	2
E4245.4	2	2	3	-	3	-	3	3	-	2
E4245.5	2	2	3	-	3	-	3	3	-	2
Total	10	10	15	-	15	-	15	15	-	10
Correlation Level	2	2	5	-	3	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of dimension, detailing, scale and its

application in Site Planning.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Unit I ,II, III	Unit IV & V	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	30
C	Viva voce	10
TOTAL		100

AAE4245- SPACE PLANNING

AAE4245		L	T	P	C
PRACTICUM		1	0	4	3
Elective – SPACE PLANNING					
Unit I	ANTHROPOMETRICS	14 Hrs			
Basic anthropometrics – average measurements of human body in different postures – its proportion and graphic representation, application in the design of simple household furniture. (Minimum 2 exercise by covering all the components)					15
Unit II	SPATIAL PARAMETERS	16 Hrs			
Role of mannequins in defining spatial parameter of design.					4
Basic human functions and their implications for spatial planning.					4
Minimum and optimum areas for various functions.					4
Preparing user profile, bubble and circulation diagrams.					4
(Minimum 2 exercise by covering all the components)					
Unit III	DESIGN METHDODOLOGY	15 Hrs			
Introduction to design methodology.					2
Detailed study of spaces such as living, dining, bedrooms, kitchen, toilet etc. including the furniture layout, circulation, clearances, lighting and ventilation, etc.					6
Case study of existing house and analysis of the spaces.					7
(Minimum 2 exercise by covering all the components)					
Unit IV	VISUAL ANALYSIS	15 Hrs			
Visual analysis of designed spaces noted for comfort and spatial quality; analysis of solid and void relations, positive and negative spaces.					15
(Minimum 2 exercise by covering all the components)					
Unit V	PROJECT	15 Hrs			
Integration of spaces and function in the design of bus shelter, milk booth, watchman's cabin, traffic police kiosk, flower stall, ATM center, etc.					15
(Minimum 1 project in the above topic)					
TOTAL HOURS					75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student

2.	Stool	1 per student
----	-------	---------------

Text Books

Sl.No	Title	Author	Publisher with Edition
1	Architecture: Form, Space and Order	Francis D K Ching	5th Edition, Wiley Publication,2023
2	Space Planning Basics	4th Edition, Wiley Publications,2016	Literary Licensing,2012
3	Space Planning for Commercial Office Interiors	Mary Lou Bakker,	2nd Edition, Fairchild Books,2016

Web-based/Online Resources

S.No	Website/Links
1	https://youtu.be/3nFFmKtoWYM
2	https://ndl.iitkgp.ac.in/
3	https://nptel.ac.in/

AAE4245 – SPACE PLANNING**MODEL QUESTION PAPER**

Part-A : Answer the Question Which Carry 40 Marks (By lot)

Part-B : Answer the Question Which Carry 50 Marks (By lot)

Duration : 3 Hrs

Max. Marks: 100

Note: Answer all the questions

Si. No	Questions	CO	PO
	PART- A (40 Marks)		
1	Draft the spaces and the function in the design of traffic police kiosk.	E4245.2	1,2,3,5,7
	PART-B (50 Marks)		
2	Sketch the bubble diagram with details on circulation.	E4245.4	1,2,3,5,7
	Viva-voce – 10 marks		

AAE4373 – INDUSTRIAL TRAINING (SW)

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)
Course Code : AAE4373
Semester : IV SEMESTER
Course Title : INDUSTRIAL TRAINING (SW)
Course Type : PRACTICAL

COURSE DESCRIPTION

The main objective of the sandwich Diploma course is to mould a well-rounded technician acclimated with the industrial environment while being a student in the institution. The Sandwich Diploma Course study is pursued by students, in 7 Semesters of 3 ½ years duration, the subjects of 3 years-Full Time Diploma Course being regrouped for academic convenience. While in the 4th semester students undergo Industrial Training for 6 months (December to May). They also do course work in the institution for one day in a week, while in the 7th semester they undergo another spell of 6 months (June to November) Industrial training. The Apprenticeship (Amendment) Act 1973 is followed in regulating the Industrial training procedure for Sandwich Course.

COURSE OBJECTIVE:

The main objective of industrial training for a diploma engineer is to provide practical, hands-on experience in real-world industrial settings, bridging the gap between academic learning and professional practice. This training aims to equip students with the skills, knowledge, and competencies required to effectively perform and succeed in the mechanical engineering industry.

Key aspects of this objective include:

- Enable students to apply the concepts and principles learned in the classroom to real-world engineering problems and scenarios.
- Develop essential technical skills.
- Enhance soft skills like communication, teamwork, problem-solving, and time management.
- Provide exposure to industrial machinery, tools, and equipment, along with the operational procedures and safety practices in a manufacturing or engineering environment.
- Offer insights into the daily operations and responsibilities of technicians, preparing students for the transition from academic settings to professional work environments.
- Educate students on industry standards, quality control measures, and best practices

in mechanical engineering and manufacturing processes.

- Help students explore various career paths within mechanical engineering, enabling them to make informed decisions about their future professional goals.
- Provide opportunities for networking with industry professionals and potential employers.
- Encourage creative thinking and innovation by challenging students to solve real-world engineering problems and improve existing processes or products.
- Instill a sense of professionalism, work ethics, and responsibility required in the engineering field.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E4373.1	Demonstrate proficiency in using industrial machinery, tools, and software.
E4373.2	Able to identify, analyze, and solve engineering problems using industry-standard methods and practices.
E4373.3	Gain a comprehensive understanding of industrial manufacturing processes, quality control, and safety practices.
E4373.4	Exhibit improved communication, teamwork, and professional behavior in an industrial setting.
E4373.5	Apply theoretical concepts learned in their coursework to practical engineering tasks and projects

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E4373.1	3	3	3	3	3	3	3	3	3	3
E4373.2	3	3	3	3	3	3	3	3	3	3
E4373.3	3	3	3	3	3	3	3	3	3	3
E4373.4	3	3	3	3	3	3	3	3	3	3
E4373.5	3	3	3	3	3	3	3	3	3	3
Total	15	15	15	15	15	15	15	15	15	15
Correlation level	5	5	5	5	3	5	3	3	3	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Duties Responsibilities of the Faculty Mentor.

Faculty mentors play a crucial role in overseeing and guiding students during their industrial training program in Diploma engineering.

Pre-Training Responsibilities:

1. Orientation and Preparation:
 - Conduct orientation sessions to familiarize students with the objectives, expectations, and guidelines of the industrial training program.
 - Assist students in understanding the importance of industrial training in their academic and professional development.
2. Placement Coordination:
 - Collaborate with the placement cell or industry liaison office to secure suitable training placements for students that align with their academic specialization and career interests.
 - Facilitate communication between the institution and host organizations to ensure smooth coordination of training arrangements.
3. Training Plan Development:
 - Help students develop a detailed training plan outlining learning objectives, tasks, and expected outcomes for the training period.
 - Guide students in setting SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goals for their training experience.

During Training Responsibilities:

4. Monitoring and Support:
 - Regularly monitor the progress of students during their industrial training. Maintain communication with both students and industry supervisors to track performance and address any issues that may arise.
 - Provide ongoing support and guidance to students, offering advice on technical challenges, professional conduct, and workplace etiquette.
5. Technical Guidance:
 - Offer technical guidance and mentorship related to the specific engineering discipline or specialization of the students. Help them apply theoretical knowledge to practical situations encountered in the industry.
6. Problem-Solving Assistance:
 - Assist students in overcoming obstacles or challenges encountered during their training. Encourage them to develop problem-solving skills and resilience in real-world engineering scenarios.
7. Feedback and Evaluation:
 - Provide constructive feedback on students' performance based on reports, assessments, and observations gathered from industry supervisors.

- Evaluate students' achievements in relation to their training objectives and competencies developed during the program.

Post-Training Responsibilities:

1. Reflection and Debriefing:
 - Conduct debriefing sessions with students to reflect on their training experiences, discuss lessons learned, and identify areas for further improvement.
 - Help students articulate their learning outcomes and how these experiences contribute to their professional growth.
2. Documentation and Reporting:
 - Ensure comprehensive documentation of students' training activities, achievements, and feedback received from industry supervisors.
 - Prepare reports summarizing students' performance and submit these to relevant departments or committees for review and assessment.
3. Career Counseling:
 - Provide career guidance and counseling to students based on their industrial training experiences. Assist them in leveraging these experiences for future job applications or further academic pursuits.
4. Continuous Improvement:
 - Collaborate with industry partners to continuously improve the quality and relevance of the industrial training program.
 - Incorporate feedback from students and industry supervisors to enhance the effectiveness of future training placements.

By fulfilling these duties and responsibilities, faculty mentors contribute significantly to the overall educational experience and professional development of Diploma engineering students during their industrial training program.

Instructions to the students

Here are some instructions for Diploma engineering students undergoing industrial training during their academic duration:

Before Starting Industrial Training:

1. Orientation and Preparation:
 - Attend orientation sessions conducted by the institution or faculty mentors to understand the objectives, expectations, and guidelines of the industrial training program.
 - Familiarize yourself with the specific policies, procedures, and safety regulations of the host organization where you will be undergoing training.

2. **Setting Goals:**
 - Set clear and specific goals for your industrial training period. Define what skills, knowledge, and experiences you aim to gain during this time.
 - Discuss your goals with your faculty mentor and seek their guidance in developing a training plan that aligns with your career aspirations.
3. **Professional Attire and Conduct:**
 - Dress appropriately and professionally according to the standards of the industry and host organization.
 - Maintain a positive attitude, demonstrate punctuality, and adhere to workplace etiquette and norms.

During Industrial Training:

4. **Learning and Engagement:**
 - Actively engage in all assigned tasks and projects. Seek opportunities to learn new skills and technologies relevant to your field of study.
 - Take initiative in asking questions, seeking clarification, and participating in discussions with supervisors and colleagues.
5. **Adaptability and Flexibility:**
 - Adapt to the work environment and demonstrate flexibility in handling various responsibilities and challenges that arise during your training.
 - Be open to different roles and tasks assigned to you, as this will broaden your experience and skill set.
6. **Professionalism and Communication:**
 - Communicate effectively with supervisors, colleagues, and clients as required. Practice clear and concise verbal and written communication.
 - Demonstrate professionalism in all interactions, respecting confidentiality, and adhering to company policies and procedures.
7. **Safety and Compliance:**
 - Prioritize safety at all times. Familiarize yourself with safety protocols, procedures, and emergency exits in the workplace.
 - Follow all safety guidelines and regulations to ensure your well-being and that of others around you.

After Completing Industrial Training:

8. Reflection and Documentation:

- Reflect on your training experience. Evaluate what you have learned, the challenges you faced, and how you have grown professionally.
- Maintain a journal or log documenting your daily activities, achievements, and lessons learned during the training period.

9. Feedback and Evaluation:

- Seek feedback from your industry supervisor and faculty mentor on your performance and areas for improvement.
- Use constructive feedback to enhance your skills and competencies for future career opportunities.

10. Career Planning:

- Use your industrial training experience to inform your career planning and decision-making process.
- Discuss your career goals and aspirations with your faculty mentor or career counselor for guidance on next steps after completing your diploma.

By following these instructions, Diploma engineering students can make the most of their industrial training experience, gain valuable insights into their chosen field, and prepare themselves effectively for future professional endeavors.

Attendance Certification

Every month students have to get their attendance certified by the industrial supervisor in the prescribed form supplied to them. Students have also to put their signature on the form and submit it to the institution supervisor. Regularity in attendance and submission of report will be duly considered while awarding the Internal Assessment mark.

Training Reports

The students have to prepare two types of reports: Weekly reports in the form of a diary to be submitted to the concerned faculty mentor of the institution. This will be reviewed while awarding Internal assessment. The details of the activity during the training will be monitored by the Faculty mentor through the faculty advisor and student.

The feedback shall be given to the HOD / Principal for further necessary action

Industrial Training Diary

Students are required to maintain the record of day-to-day work done. Such a record is called Industrial training Diary. Students have to write this report regularly. All days for the week should be accounted for clearly giving attendance particulars (Presence, absence, Leave, Holidays etc.). The concern of the Industrial supervisor is to periodically check these progress reports.

Comprehensive Training Report

In addition to the diary, students are required to submit a comprehensive report on training with details of the organization where the training was undergone after attestation by the supervisors. The comprehensive report should incorporate study of plant / product / process / construction along with intensive in-depth study on any one of the topics such as processes, methods, tooling, construction and equipment, highlighting aspects of quality, productivity and system. The comprehensive report should be completed in the last week of Industrial training. Any data, drawings etc. should be incorporated with the consent of the Organization.

Scheme of Evaluation

Internal Assessment

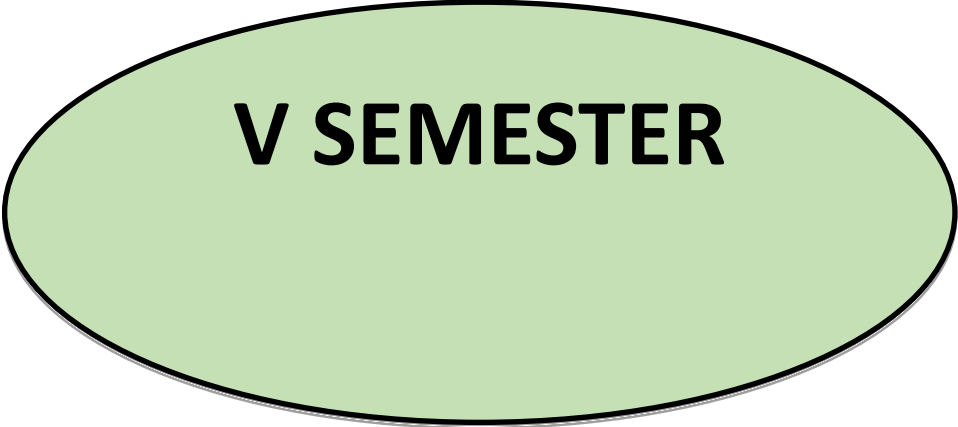
Students should be assessed for 40 Marks by industry supervisor and polytechnic faculty mentor during 3rd Month and 5th Month. The total marks (40 + 40) scored shall be converted to 40 marks for the Internal Assessment.

Sl. No.	Description	Marks
A	Punctuality and regularity. (Attendance)	10
B	Level / proficiency of practical skills acquired. Initiative in learning / working at site	10
C	Self expression / communication skills. Interpersonal skills / Human Relation.	10
D	Report and Presentation.	10
Total		40

End Semester Examination - Project Exam

Students should be assessed for 100 Marks both by the internal examiner and external examiner appointed by the Chairperson, Autonomous examinations after the completion of internship period of six months. The marks scored will be converted to 60 marks for the End Semester Examination.

Sl. No.	Description	Marks
A	Daily Activity Report.	20
B	Comprehensive report on Internship, Relevant Internship Certificate from the concerned department.	30
C	Presentation by the student at the end of the Internship.	30
D	Viva Voce	20
Total		100



V SEMESTER

AAE5110 – MECHANICS OF STRUCTURES

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE5110

Semester : V SEMESTER

Course Title : MECHANICS OF STRUCTURES

Course Type : THEORY

L	T	P	C
4	0	0	4

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
MECHANICS OF STRUCTURES	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	STRESS AND STRAIN & ELASTIC CONSTANTS	12
II	SHEAR FORCE AND BENDING MOMENT	12
III	GEOMETRICAL PROPERTIES	12
IV	SLOPE AND DEFLECTION OF BEAMS	12
V	COLUMNS, STRUTS & PINJOINTED FRAMES	12
Total		60

COURSE DESCRIPTION

This is a fundamental subject which covers broad elements of Engineering Mechanics, Strength of Materials and Theory of Structures. Study of this subject enables the student to distinguish between different types of stress and strain in a material, under the action of external forces. The student will learn to analyse simple structural elements for their design which he usually needs in the professional life. Teachers while imparting instruction should stress on concepts and principles and provide considerable practice in problem solving.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understand the Stress, strain and elastic constants.
- Understand the Application of stress and strain in engineering field.
- Know about the behavior of ductile and brittle materials.
- Locate the position of centroid of different geometrical section.
- Determine I_{xx} , I_{yy} , Z_{xx} , Z_{yy} of different geometrical section.
- Understand stresses in beams due to bending.
- Determine the Slope and Deflection of Determinate beams by area moment method.
- Analyze of Continuous beam, fixed beam and propped cantilever by Theorem of Three
- moment and draw SFD & BMD.
- Define different types of Columns and to find Critical load of Columns.

COURSE OUTCOMES:

On successful completion of this course, the student will be able to	
E5110.1	Knowing the stress, strain and elastic constants and apply stress and strain in engineering field.
E5110.2	Analyze of SF and BM in beams and draw the SFD and BMD.
E5110.3	Find out the CG and MI of sections.
E5110.4	Analyze the Slope and deflection of cantilever and simply supported beams.
E5110.5	Load on axially loaded column

Pre-requisites

Nil

CO-POs & PSOs mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5110.1	3	3	2	2	2	-	2	2	3	-
E5110.2	3	3	2	2	2	-	2	2	3	-
E5110.3	3	3	2	2	2	-	2	2	3	-
E5110.4	3	3	2	2	2	-	2	2	3	-
E5110.5	3	3	2	2	2	-	2	2	3	-
Total	15	15	10	14	10	-	15	10	15	-
Correlation Level	3	3	2	3	2	-	3	2	3	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

This subject is introduced so that diploma holder in Architectural Assistantship may appreciate the concepts and principles of mechanics of structures of various elements of building and are able to apply the knowledge gained through the subject for the design of simple and small components. Teacher should give simple exercises involving the applications of various concepts and principles being taught in the subject. Efforts should be made to prepare tutorial sheets on various topics and students should be encouraged/guided to solve the tutorial problems independently. Teacher may conduct weekly small quiz sessions to know the students' level of understanding and if need be, teacher may reinforce the concepts and principles related to mechanics of structures of elements/members of building components.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by

Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory

Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- | | |
|------|----|
| I. | 1 |
| | 2 |
| | 3 |
| | 4 |
| II. | 5 |
| | 6 |
| | 7 |
| | 8 |
| III. | 9 |
| | 10 |
| | 11 |
| | 12 |
| IV. | 13 |
| | 14 |
| | 15 |
| | 16 |
| V. | 17 |
| | 18 |
| | 19 |
| | 20 |

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE5110 – MECHANICS OF STRUCTURES

AAE5110	MECHANICS OF STRUCTURES	L	T	P	C
THEORY		4	0	0	4
Unit I	STRESS AND STRAIN & ELASTIC CONSTANTS	12 Hrs			
Introduction:					
Importance of study of Engineering Mechanics/ Strength of Materials, Mechanical properties of materials – Elasticity, Plasticity, Hardness, Toughness, Brittleness, Ductility, Creep & Fatigue.					2
Stress and strain:					
Force-definition-Types of forces acting on a structural member-Definition of tension, compression, shear; Stress-strain-definition-Different types of stresses-tensile, compressive and shear stresses –					2
Different types of strains –Tensile, Compressive and Shear strains; Longitudinal and Lateral strains-Poisson's Ratio-					1
Numerical problems on stress and strain.					2
Modulus of Elasticity / Elastic constants:					
Elasticity –Elastic limit- Hooke's law – Young's modulus of Elasticity –Rigidity modulus-Volumetric strain – Bulk modulus – Definition- Relation between three Moduli-(no derivation)-Young's modulus for selected engineering materials-					1
Numerical problems.					2
Behavior of ductile and brittle material:					
Load extension curve of Ductile and Brittle material – Limit of proportionality, Elastic limit, Yield stress, Ultimate stress, Breaking stress, Factor of safety – Significance of percentage of elongation and reduction in area –					1
Numerical problems.					1
Unit II	SHEAR FORCE AND BENDING MOMENT	12 Hrs			
Introduction:					
Definition of a beam– Support conditions and diagrammatic representation – Types of beams based on support conditions – Diagrammatic representation of beams – Static equilibrium equations –					1
Determinate and indeterminate beams- Loads- Transverse Loads-Types of loads (Concentrated, uniformly distributed and varying loads)- Diagrammatic representation of beams with different loads.					1
SFD & BMD:					
Shear force and Bending Moment - Definition –Conventional signs used for S.F. and B.M – S.F and B.M of determinate beams – Cantilever beam & simply supported beams- Point					2

of contra flexure-Economical overhanging –		
Numerical problems on SFD & BMD for cantilever beams (Simple problems on Two concentrated loads/ UDL for entire span / One point load with UDL for entire span) -		4
Numerical problems on SFD & BMD for simply supported beams (Symmetrical loading only- Two point loads/ UDL for entire span/ Central point load with UDL for entire span only)		4
Unit III	GEOMETRICAL PROPERTIES	12 Hrs
CENTROID:		
Geometrical properties -Definition of centroid and center of gravity –Centroid of regular geometrical figures - Centroid of symmetric, asymmetric, and anti-symmetric practical sections-		1
Numerical problems on steel members (equal angle, unequal angle, T, I & Channel sections only)		5
MOMENT OF INERTIA:		
Definition and notation of Moment of Inertia, Polar moment of inertia, Radius of gyration, Section modulus and Polar modulus, Parallel and perpendicular axis theorems (statement only)		1
M.I. of regular geometrical plane sections (rectangular, triangular and circular sections) –		5
Numerical problems on steel members (unequal angle , T , I & Channel sections only)		
Unit IV	SLOPE AND DEFLECTION OF BEAMS	12 Hrs
Deflected shape of beams with different support conditions – Flexural rigidity and stiffness of beams – Definition of slope and deflection-Area moment method – Mohr's theorems for slope and deflection of beams –		1
Derivation of expression for maximum slope and maximum deflection of simple standard cases by area moment method for cantilever and simply supported beams subjected to symmetrical UDL and point loads –		4
Numerical problems on slope and deflection at salient points of cantilever and simply supported beam.(SSB carrying UDL throughout and point load at centre & Cantilever carrying UDL throughout and point load at free end only.		7
Unit V	COLUMNS, STRUTS & PINJOINTED FRAMES	12 Hrs
COLUMNS & STRUTS		
Definition of columns and struts - short and long columns – Equivalent length/Effective length- Slenderness ratio- Axially loaded and eccentrically loaded- End conditions –		1
Euler's formula for buckling load- Assumptions made for Euler's formula - Rankine's formula for buckling load (no derivation)		1
Application of formula – columns subjected to axial loads – simple problems on simple single section only. (Euler's formula and Rankine's formula)		4
PINJOINTED FRAMES (Theory only)		

Frame / Truss – definition – Determinate and Indeterminate frames – Classification of frames – Perfect and Imperfect frames – Deficient and Redundant frames –	1
Formulation of a perfect frame – Common types of trusses – Methods of analysis - Graphical method - Space diagram – Bow’s notation – Resultant force– Vector diagram.	1
Numerical problem on graphical method (cantilever truss only)	4
TOTAL HOURS	60

Suggested List of Students Activity:

1. Quiz
2. Group discussion
3. Seminar
4. Surprise tests.
5. Laboratory tests on materials.
6. Class assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Strength of materials / Theory of structures	Er. Ashok K. Jain & Dr. Arun K. Jain	13 th edition & 10 th edition, Lakshmi publications, Delhi, 2017/2018.
2.	Strength of materials / Theory of structures	S.Ramamrutham, R. Narayanan	20 th edition & 11 th edition, Lakshmi publications, Delhi, 2020/2020.
3.	Strength of Materials	R.S.Khurmi , N. Khurmi	Revised Edition, S Chand Publications, 2015.

Web-based/Online Resources

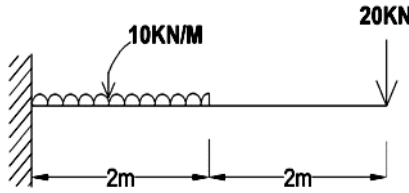
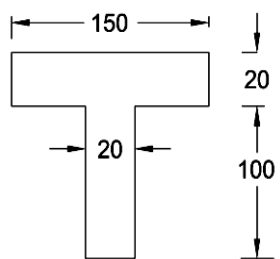
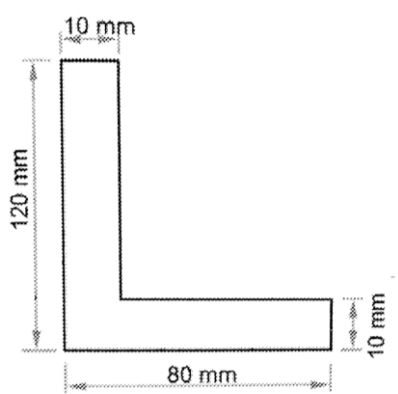
S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/@iit
4	https://www.nptelvideos.com/
5	https://www.youtube.com/@dotediplomae-lectures3545

MODEL QUESTION PAPER**AAE5110 – MECHANICS OF STRUCTURES****Time: 3 Hrs****Max.Marks: 100****PART- A (5 X 2 X 10 Marks = 100 Marks)**

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Explain different type's stresses.	I	U	E5110.1	PO1, PO3, PO5, PO7
	2.	A bar of length 200mm and square in section of side 50mm is subjected to axial Pull of 150 KN. The extension in length was 0.05mm and the decrease in side was 0.00625mm. Find the elastic constants and Poisson's ratio.	I	R	E5110.1	PO1, PO3, PO5, PO7
	3.	A material has a modulus of elasticity of 1.2×10^5 N/mm ² and a poisson's ratio of 0.25. Calculate the modulus of rigidity and Bulk modulus.	I	R	E5110.1	PO1, PO3, PO5, PO7
	4.	During tension test on M.S specimen the following observations were made. Diameter of the rod is 20mm. Gauge length 200mm. yield ultimate and breaking loads are 85KN, 120KN and 90KN respectively. The final length of the specimen is 205. 6mm and neck diameter is 1.5mm. Determine yield stress, Breaking stress, Ultimate stress & % elongation and contraction.	I	R	E5110.1	PO1, PO3, PO5, PO7
II	5.	Explain different types of loads acting on a beam with neat sketches.	II	U	E5110.2	PO1, PO3, PO5, PO7
	6.	Explain different types of beams based on support conditions with neat sketch.	II	U	E5110.2	PO1, PO3, PO5, PO7
	7.	A simply supported beam of length 6m subjected with udl of 10KN/m for entire span. Draw the shear force and bending moment diagram.	II	U	E5110.2	PO1, PO3, PO5, PO7

	8.	Sketch the Shear force and B.M diagram for the beam shown in figure. 	II	R	E5110.2	PO1, PO3, PO5, PO7
III	9.	Explain symmetric, asymmetric and anti-symmetric practical section with examples.	III	R	E5110.3	PO1, PO3, PO5, PO7
	10.	Find the centroid of the given 'T' section as shown in figure. (All dimensions are in mm) 	III	U	E5110.3	PO1, PO3, PO5, PO7
	11.	Determine the Moment of Inertia and Radius of gyration about XX axis of 'T' section as shown in fig. (All dimensions are in mm) 	III	R	E5110.3	PO1, PO3, PO5, PO7
	12.	Find the M.I of hollow circular section having outer diameter 400mm and inner diameter 300mm. Also find the section modulus and radius of gyration.	III	U	E5110.3	PO1, PO3, PO5, PO7
IV	13.	Write short notes on point of contra flexure and economical overhanging with sketches.	IV	U	E5110.4	PO1, PO3, PO5, PO7

	14.	Derive the expression for maximum slope and deflection of cantilever beam subjected with udl load for entire span.	IV	R	E5110.4	PO1, PO3, PO5, PO7
	15.	A cantilever 150mm wide and 200mm deep projects 1.5m out of wall and is carrying a point load of 20kN at the free end. Find the slope and deflection of the cantilever at the free end. Take $E = 2.1 \times 10^5 \text{ N/mm}^2$.	IV	U	E5110.4	PO1, PO3, PO5, PO7
	16.	A cantilever span 4m carries a uniformly distributed load of 10kN/m run over the entire span. The cross section of the beam is 200mmx300mm. Young's modulus is $2.1 \times 10^5 \text{ N/mm}^2$. Calculate the maximum slope at the free end of the beam.	IV	U	E5110.4	PO1, PO3, PO5, PO7
V	17.	What are the assumptions Made in The Euler's Theory?	V	R	E5110.5	PO1, PO3, PO5, PO7
	18.	Briefly explain about short and long column, effective length, slenderness ratio and axially loaded column.	V	R	E5110.5	PO1, PO3, PO5, PO7
	19.	A steel tube 4.5m long, 30mm external diameter and 3mm thickness is used as a strut. Calculate the Euler's crippling load for the following conditions. a. When both ends are hinged. b. When one end is hinged and the other fixed. Take $E = 2 \times 10^5 \text{ N/mm}^2$	V	U	E5110.5	PO1, PO3, PO5, PO7
	20.	Write short notes on space diagram, Bow's notation and vector diagram.	V	U	E5110.5	PO1, PO3, PO5, PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE5210 – HISTORY OF ARCHITECTURE - II

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE5210

Semester : V SEMESTER

Course Title : HISTORY OF ARCHITECTURE - II

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
HISTORY OF ARCHITECTURE - II	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	ANCIENT INDIA & BUDDHIST ARCHITECTURE	9
II	HINDU ARCHITECTURE	9
III	DRAVIDIAN ARCHITECTURE	9
IV	INDO - ARYAN STYLE	9
V	WORLD ISLAMIC AND INDO – ISLAMIC ARCHITECTURE	9
Total		45

COURSE DESCRIPTION

The teaching of Historical Architecture can have its emphasis upon Chronology, Building materials and Technology, Architectural styles and Architectural details. It is not essential to address the associated elements (the influences) and the context of particular styles. The various styles can be explained with selected examples, which can be expounded through schematic drawings of only Plans, concepts, Structural Principles and Architectural Styles. The Historical, Socio-Cultural, Geographical influences of various Architecture should be emphasized to the students.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understand ancient India - Buddhist, Hindu, Dravidian, Indo-Aryan style, world Islamic and Indo –Islamic Architecture styles.

COURSE OUTCOMES:

On successful completion of this course, the student will be able to	
E5210.1	Know about the origin of architecture in India
E5210.2	Acquire knowledge in the Hindu architecture in earlier period
E5210.3	Know about the Dravidian architecture style
E5210.4	Acquire knowledge in the northern style architecture
E5210.5	Understand the salient features of Islamic architecture style

Pre-requisites

Knowledge of History of Architecture - I

CO-POs & PSOs mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5210.1	3	-	2	-	2	-	3	3	-	-
E5210.2	3	-	2	-	2	-	3	3	-	-
E5210.3	3	-	2	-	2	-	3	3	-	-
E5210.4	3	-	2	-	2	-	3	3	-	-
E5210.5	3	-	2	-	2	-	3	3	-	-
Total	15	-	10	-	10	-	15	15	-	-
Correlation Level	3	-	2	-	2	-	3	3	-	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques. Emphasis must be laid on freehand drawing and each student should maintain a sketchbook.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
2
3
4
- II. 5
6
7
8
- III. 9
10
11
12
- IV. 13
14
15
16
- V. 17
18
19
20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE5210 – HISTORY OF ARCHITECTURE – II

AAE5210		HISTORY OF ARCHITECTURE – II	L	T	P	C
THEORY			3	0	0	3
Unit I	ANCIENT INDIA & BUDDHIST ARCHITECTURE					9 Hrs
ANCIENT INDIA						
Indus Valley Civilization - Culture and pattern of settlement,						1
Vedic village and the rudimentary forms of bamboo and wood						1
wooden construction under the Mauryan rule						1
BUDDHIST ARCHITECTURE						
Architectural Production during Ashoka's rule						2
Ashokan Pillar, Sarnath, Sanchi Stupa & Sketches						2
Salient features of a Chaitya Hall and Vihara						2
Unit II	HINDU ARCHITECTURE					9 Hrs
Evolution of Hindu Temple						1
Early shrines of the Gupta periods						2
Early shrines of Chalukyan periods						2
Durga Temple, Aihole						2
Virupaksha Temples, Pattadakal - Sketches						2
Unit III	DRAVIDIAN ARCHITECTURE					9 Hrs
Dravidian architecture characters						1
Rock cut productions under Pallavas - Shore Temple, Mahaballipuram						2
Dravidian Order -Brihadeeswara Temple, Tanjore. - Sketches						2
Evolution and form of Gopuram,						1
Complexity in temple plan due to complexity in Ritual						1
Meenakshi Temple, Madurai.						2
Unit IV	INDO - ARYAN STYLE					9 Hrs
Salient features of an Indo Aryan architecture						3
Lingaraja Temple Bhuvaneswar						2
Sun Temple, Konark - Sketches						2
Somnath temple, Gujarat.						2
Unit V	WORLD ISLAMIC AND INDO – ISLAMIC ARCHITECTURE					9 Hrs
INTRODUCTION TO WORLD ISLAMIC ARCHITECTURE						
Middle East, south East Asia, Pakistan and Bangladesh – general architecture features.						3
INTRODUCTION TO INDO – ISLAMIC ARCHITECTURE						
Change from trabeate to vaulted and dome construction - Mix of Islamic and Indian						3

elements and early provincial indo – Islamic architecture Typical characters of mosque, fort, gateway and tomb (Masjid, Quila, Darwazza, Mausoleum) - Red fort, Delhi & Taj Mahal, Agra - Sketches	3
TOTAL HOURS	45

Suggested List of Students Activity:

1. Quiz
2. Group discussion
3. Seminar
4. Assignments
5. Freehand Sketches
6. Site visits to the local old monuments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	A History of Architecture	Sir Banister Fletcher	20 th edition, Architectural Press
2.	Indian Architecture (Buddhist and Hindu Period)	Percy Brown	Taraporevala and Sons, Bombay.
3.	The Architecture of India (Buddhist and Hindu Period)	Satish Grover	Vikas Publishing Housing Pvt.Ltd., NewDelhi.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=44JAPp_SV94
4	https://www.youtube.com/watch?v=4RbSbuQomq4

MODEL QUESTION PAPER**AAE5210 – HISTORY OF ARCHITECTURE - II****Time: 3 Hrs****Max.Marks: 100****PART- A (5 X 2 X 10 Marks = 100 Marks)**

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Explain the Indus Valley Civilization.	I	U	E5210.1	PO1, PO3, PO5, PO7
	2.	Explain the wooden construction under the Mauryan rule.	I	R	E5210.1	PO1, PO3, PO5, PO7
	3.	Write the Salient features of a Chaitya Hall.	I	R	E5210.1	PO1, PO3, PO5, PO7
	4.	Explain the Culture and pattern of settlement of Indus valley civil.	I	R	E5210.1	PO1, PO3, PO5, PO7
II	5.	Highlight any eight architectural evolution of Hindu temple architecture.	II	U	E5210.2	PO1, PO3, PO5, PO7
	6.	Explain with neat sketches for Virupaksha Temples, Pattadakal.	II	U	E5210.2	PO1, PO3, PO5, PO7
	7.	Explain with neat sketches for Durga temple, Aihole.	II	U	E5210.2	PO1, PO3, PO5, PO7
	8.	Highlight the early shrines of the Gupta and Chalukyan periods.	II	R	E5210.2	PO1, PO3, PO5, PO7
III	9.	Explain with neat sketches about Brihadeeswara temple.	III	R	E5210.3	PO1, PO3, PO5, PO7
	10.	Explain detail about the Evolution and form of Gopuram.	III	U	E5210.3	PO1, PO3, PO5, PO7
	11.	Explain with neat sketches for Shore temple, Mahabalipuram.	III	R	E5210.3	PO1, PO3, PO5, PO7
	12.	Explain with neat sketches about Meenakshi Temple, Madurai.	III	U	E5210.3	PO1, PO3, PO5, PO7
IV	13.	Explain the architectural character of Somnath temple, Gujarat.	IV	U	E5210.4	PO1, PO3, PO5, PO7
	14.	Highlight the architectural features of Indo-Aryan style with sketches.	IV	R	E5210.4	PO1, PO3, PO5, PO7
	15.	Highlight the Salient features of Lingaraja Temple.	IV	U	E5210.4	PO1, PO3, PO5, PO7

	16.	Explain with neat sketches for Sun Temple, Konark.	IV	U	E5210.4	PO1, PO3, PO5, PO7
V	17.	Highlight any ten architectural features of World Islamic architecture.	V	R	E5210.5	PO1, PO3, PO5, PO7
	18.	Explain with neat sketches of Taj Mahal, Agra.	V	R	E5210.5	PO1, PO3, PO5, PO7
	19.	Explain with neat sketches of Red Fort, Delhi.	V	U	E5210.5	PO1, PO3, PO5, PO7
	20.	Explain the change from trabeate to vaulted and dome construction.	V	U	E5210.5	PO1, PO3, PO5, PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE5330 – BUILDING SERVICES

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE5330

Semester : V SEMESTER

Course Title : BUILDING SERVICES

Course Type : PRACTICUM

L	T	P	C
2	0	2	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
BUILDING SERVICES	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	ELECTRICAL SERVICES& LIGHTING	14
II	VENTILATION & AIR CONDITIONING	8
III	MECHANICAL SERVICES & FIRE PROTECTION	12
IV	RENEWABLE ENERGY SOURCES	12
V	ACOUSTICS & BUILDING SAFETY AND SECURITY SYSTEMS	14
Total		60

COURSE DESCRIPTION

Building services engineering, technical building services, architectural engineering, or building engineering is the engineering of the internal environment and environmental impact of a building. It essentially brings buildings and structures to life. This includes design, installation, and operation & monitoring of the mechanical, electrical and public health systems required for the safe, comfortable and environmentally friendly, acoustically treated of modern buildings. Building services engineers work closely with other construction professionals; architects, structural engineers and quantity surveyors. They influence the architecture of a building and play a significant role on the sustainability and energy demand of a building. Within building services engineering, new roles are emerging, for example in

the areas of renewable energy, sustainability, low carbon technologies and energy management. A typical building services engineer has a wide-ranging career path include design, Construction, electrical, lighting, water supply, security systems, and drainage and Environmental technology.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- To understand the electrical terms, units and symbols involved in the building industries both commercial and residential
- To prepare electrical layout for residential buildings
- To gain knowledge about lighting systems, units of lighting and types
- To understand the importance of sources of water and supply methods
- To understand different types of fixtures and plumbing methods involved in residence
- To gain knowledge about the building sanitation and disposal methods
- To prepare drainage layout for residential buildings
- To gain knowledge about modern buildings safety and security systems

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E5330.1	Develop knowledge in electrical supply and wiring system
E5330.2	Acquire knowledge about the types of lamps and lighting
E5330.3	Acquire knowledge about renewable energy sources
E5330.4	Understanding the concepts of sanitation and storm water drain
E5330.5	Apply building safety and security systems

Pre-requisites

Knowledge of basic Science

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5330.1	2	-	3	-	3	-	2	2	3	-
E5330.2	2	-	3	-	3	-	2	2	3	-
E5330.3	2	-	3	-	3	-	2	2	3	-
E5330.4	2	-	3	-	3	-	2	2	3	-
E5330.5	2	-	3	-	3	-	2	2	3	-
Total	10	-	15	-	15	-	10	10	15	-
Correlation Level	2	-	3	-	3	-	2	2	3	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

Building services are as important as any other part of the building. The teachers, besides classroom teaching, should supplement the instruction by arranging field visits. A material lab cum Museum must be made available for effective and functional teaching.

Students may be encouraged to collect information, pamphlets and catalogues from different market/ manufacturing sources and prepare a scrapbook of the latest machines/fittings available for building services. Teachers may also encourage the students to go through relevant BIS codes for each topic. The subject knowledge should be used in preparing services drawings in the subject of Architectural design. Students are supposed to show Water supply, Sanitary, Electrical arrangements in one of the small houses. They should show Water supply line, Sewer line showing the position of Manholes, Septic tank, Traps etc.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written Test Theory (Unit I & II)	Written Test Theory (Unit III & IV)	Practical Test (All Exercises)	Written Test (Complete Theory Portions)	Written Examination (Complete Theory Portions)
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	50	50	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	15 th Week	16 th Week	

Note:

- CA1 and CA2:** Assessment written test should be conducted for 50 Marks. The marks scored will be converted to 10 Marks for each test.
 CA1 and CA2, Assessment written test should be conducted for two units as below.
 Answer any Five questions. (5 X 10 Marks = 50 Marks).
 Eight questions will be asked, students should write Five questions.
 Each unit Four questions can be asked.
- CA 3:** All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below.
 The marks awarded for 100 marks will be converted to 10 Marks for the internal mark.
 Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. Each exercise/experiment should be evaluated for 10 Marks. The total marks awarded should be converted to 30 Marks for the practical test as per the scheme of evaluation as below.
The details of the practical documents to be prepared as per the instruction below.

Each exercise observation and calculations should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or file. The reading and calculations and graph should be written by the student manually. The evaluated practical document should be submitted for the Practical Test (CA3). The mark scored by the students should be converted to 30 marks. The same should be included as per the allocation in the practical test.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION - Practical Test

Sl.No.	Description	Marks
A	Aim / Apparatus required	10
B	Procedure / Observation	20
C	Formula / Calculation	20
D	Result / Graph	10
E	Practical document (All Practicals)	30
F	Viva Voce	10
Total		100

- **CA4:** Model examination should be conducted for complete theory portions as per the end semester question pattern. The marks awarded should be converted to 10 marks for the internal assessment.

Question Pattern:

Answer ten questions by selecting two questions from each unit. Each question carries 10 marks each.

Four questions will be asked from every unit, students should write any two questions.

Question Pattern - Model Examination and End Semester Examination - Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer ten questions by selecting two questions from each unit. Each question carries 10 marks each.

The questions are to be numbered from 1 to 20. All the units are to be covered with equal weightage.

PART – A	10 x 10 = 100 marks
Total	100 Marks *

Note: * Autonomous Examinations will be conducted for 100 Marks and converted to 60 Marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE5330 – BUILDING SERVICES

AAE5330		BUILDING SERVICES	L	T	P	C
PRACTICUM			2	0	2	3
Unit I	ELECTRICAL SERVICES& LIGHTING					14 Hrs
Theory:						
Conventional Architectural Symbols for Electrical Installations						1
Types of Switches–2 pin and 3 pin sockets						1
Preparation of Electrical layout for a small residence						2
Units of measurement – Lux, candela, Luminous flux						1
Types of lighting - Natural and Artificial Lighting.Requirements of good lighting						2
Light fittings –Fluorescent bulbs, Mercury Vapor lamps, Energy Efficient lighting. (CFL, LED)						1
Practical:						
1. Preparation of Electrical layout for a small residence.						3
2. Prepare a light fitting layout for 10’0”x10’0” room						3
Unit II	VENTILATION & AIR CONDITIONING					8 Hrs
Theory:						
Types of ventilation systems (Natural & Mechanical ventilation in buildings)						1
Definition – Purpose – Principles of air conditioning						1
Air Conditioning Systems (Central type, Window Type &Split unit) –						1
Air conditioning layout for an auditorium & conference hall						1
Practical:						
3.To study about various ventilation systems						2
4. Prepare an air conditioning layout for an auditorium						2
Unit III	MECHANICAL SERVICES & FIRE PROTECTION					12 Hrs
Theory:						
Lifts – Definition – Location – Sizes – Components of Escalators – Locations and Functions – Advantages of Escalators.						2
Fire protection systems (Fire hydrants, automatic sprinklers, carbon dioxide fire extinguishing system)						2
Requirements as per NBC (Fire exits, General requirements, maximum travel distance, Horizontal exit, roof exit, fire lifts, external stairs) – Firefighting equipment.						2
Practical:						3
5.To study about various Mechanical services in buildings						3
6. Prepare a fire escape plan for a commercial building.						
Unit IV	RENEWABLE ENERGY SOURCES					12 Hrs
Theory:						
Merits of renewable energy sources						1

Solar cell, solar panels, solar water heater, solar lighting, solar pumps and fountains, solar pool heater	2
Portable and flexible solar panels	1
Hydro power plant – merits and limitations	2
Practical:	
7. Prepare a layout of solar panel for a residential building of 2000 sq.ft roof area.	3
8. Prepare a layout for solar water heater for a residential building	3
Unit V	ACOUSTICS & BUILDING SAFETY AND SECURITY SYSTEMS 14 Hrs
Theory:	
Acoustics of Buildings (Necessity of Acoustical design in buildings)	1
Measurement of intensity of sound (Bel, Decibel)	1
Acoustical Treatment of Buildings such as Cinema Theatre, Concert Halls, Conference Hall, Seminar and Lecture Hall.	1
CCTV cameras - Types - Dome cameras - Wall cameras - Hidden cameras -Components of CCTV system – uses in residential buildings.	2
Practical:	
9. Prepare an acoustical treatment layout for cinema theatre	3
10.Prepare a CCTV installation layout for seminar and lecture hall.	3
11.Prepare an acoustical treatment layout for home theatre	3
TOTAL HOURS	60

Suggested List of Students Activity:

- Students are expected to draft the sheets on the concerned topics.
- The students are also expected to go through Architecture Journals like Inside – Outside, Interiors Today, Design and Interiors, Architect and builder, Builders Friend etc. They may make scrapbook of relevant brochures.

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Water Supply and Sanitary engineering	S.C.Rangwala	Charotar Publishing House, 2005
2.	Advanced Constructions Technology	R.Chudley	Longman; 3rd edition 1999
3.	Building service	Zaher	CreateSpace Independent Pub,2012

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=nRanL9sXHhc&list=PLccFEq6jzqepxx6x1HAkaglEX5Lypb9tS
4	https://www.youtube.com/watch?v=0LNklcBhl_Q&list=PLp6ek2hDcoNCb0R8gxk1WzpTN94eXs9vb

AAE5330 – BUILDING SERVICES

MODEL QUESTION PAPER

Time : 3 Hrs

Max.Marks : 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.No	Questions	Unit	Blooms Level	Course Outcome	Program Outcomes
I	1. What are the general principles to provide openings to afford good natural lighting?	I	U	E5330.1	PO1,PO2, PO5,PO7
	2. Explain any four types of fuses with sketches.	I	R	E5330.1	PO1,PO2, PO5,PO7
	3. Write short notes on i) change over switch. ii) exhaust fan.	I	U	E5330.1	PO1,PO2, PO5,PO7
	4. Explain the Types of lighting with examples.	I	R	E5330.1	PO1,PO2, PO5,PO7
II	5. Explain the window type AC unit with a neat sketch.	II	R	E5330.2	PO1,PO2, PO5,PO7
	6. Discuss the types of ventilation.	II	U	E5330.2	PO1,PO2, PO5,PO7
	7. Explain any two principles of air conditioning.	II	U	E5330.2	PO1,PO2, PO5,PO7
	8. Explain the Air Conditioning Systems.	II	R	E5330.2	PO1,PO2, PO5,PO7
III	9. Explain the components of a lift with a neat sketch.	III	R	E5330.3	PO1,PO2, PO5,PO7
	10. Enumerate the advantages of escalators.	III	U	E5330.3	PO1,PO2, PO5,PO7
	11. Explain in detail any four types of fire protection systems.	III	R	E5330.3	PO1,PO2, PO5,PO7
	12. Explain the Components of Escalators with a neat sketch.	III	U	E5330.3	PO1,PO2, PO5,PO7
IV	13. Explain the usage of solar energy with sketches.	IV	R	E5330.4	PO1,PO2, PO5,PO7
	14. Explain about the portable and flexible solar panels.	IV	R	E5330.4	PO1,PO2, PO5,PO7

	15.	Explain the merits and limitations of solar energy.	IV	U	E5330.4	PO1,PO2, PO5,PO7
	16.	Explain the usage of solar water heater and solar pool heater.	IV	U	E5330.4	PO1,PO2, PO5,PO7
V	17.	Explain the various acoustical defects in detail.	V	R	E5330.5	PO1,PO2, PO5,PO7
	18.	Enumerate the Necessity of Acoustical design in buildings.	V	R	E5330.5	PO1,PO2, PO5,PO7
	19.	Explain the access control system with a neat sketch.	V	U	E5330.5	PO1,PO2, PO5,PO7
	20.	Explain the Components of CCTV system and sketch it.	V	R	E5330.5	PO1,PO2, PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE5420 – ARCHITECTURAL DESIGN STUDIO - II

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE5420

Semester : V SEMESTER

Course Title : ARCHITECTURAL DESIGN STUDIO - II

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ARCHITECTURAL DESIGN STUDIO - II	4	60	40	100*	100	3 Hrs

***Examinations will be conducted for 100 marks and will be converted to 60 marks**

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	DESIGN PROBLEM – 1	30
II	DESIGN PROBLEM – 2	30
Total		60

COURSE DESCRIPTION

Large percentage of diploma holders in Architectural Assistantship find employment with private architects and also majority of them go for self-employment. Therefore, diploma holders are required to design small residential buildings. This course aims at providing practical exercises in designing so as to develop appropriate knowledge and skills in building design. Teachers are expected to show various types of designs of small to medium residential buildings to develop an appreciation of different designs.

COURSE OBJECTIVE:

The objective of this course is to enable the student

- To develop space visualization application of materials to simple architectural forms.

- To apply the knowledge gained in other subjects and basic design to design of buildings of single/ simple activity.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E5420.1	Collect the data for given design
E5420.2	Develop the literature study for given design
E5420.3	Describe the case study report
E5420.4	Develop the conceptual design scheme
E5420.5	Develop the detailed Design and presentation drawings which include Plan, Elevation, Section, Perspective Views etc for given design problem

Pre-requisites

Knowledge of basic drawing.

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5420.1	2	2	3	-	3	-	3	2	-	3
E5420.2	2	2	3	-	3	-	3	2	-	3
E5420.3	2	2	3	-	3	-	3	2	-	3
E5420.4	2	2	3	-	3	-	3	2	-	3
E5420.5	2	2	3	-	3	-	3	2	-	3
Total	10	10	15	-	15	-	15	10	-	15
Correlation Level	2	2	3	-	3	-	3	2	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Engage and Motivate: Instructors should actively engage students to boost their learning confidence.
- Real-World Relevance: Incorporate relatable, real-life examples and engineering applications to help students understand and appreciate course concepts.
- Interactive Learning: Utilize demonstrations and plan interactive student activities for an engaging learning experience.

- **Application-Based Learning:** Employ a theory-demonstrate-practice-activity strategy throughout the course to ensure outcome-driven learning and employability.
- **Simulation and Real-World Practice:** Conduct demonstrations and hands-on activities in a simulated environment, transitioning to real-world scenarios when possible.
- **Encourage Critical Analysis:** Foster an environment where students can honestly assess experiment outcomes and analyse potential sources of error in case of discrepancies

Assessment Methodology:

	Continuous Assessment (40 Marks)				End Semester Examination (60 Marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Practical Document	Practical Test	Practical Examination
Portion	Design - 1	Design - 2	Design – 1& 2	Design – 1& 2	Design – 1& 2
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10 Marks	100	100
Converted to	10	10	10	10	60
Internal Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	-

DETAILED ALLOCATION OF MARKS: CA1, CA2

Note:

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	PLAN	15
B	SECTION	10
C	ELEVATION	10
D	VIEWS	15
TOTAL MARKS		50

CA 3: Practical document (Hand written document / Notebook consists of Aim, Apparatus Required, Circuit, Tabulation, Graph, Procedure and Result) should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	SITE PLAN	15
B	PLAN	25
C	SECTION	20
D	ELEVATION	20
E	VIEWS	10
	VIVA	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE5420 – ARCHITECTURAL DESIGN STUDIO - II

AAE5420		ARCHITECTURAL DESIGN STUDIO - II	L	T	P	C
PRACTICAL			0	0	4	2
Unit I	DESIGN PROBLEM – 1					Hrs
Institutional buildings: Nursery / Primary schools/school for children with learning disabilities Design problem shall deal with planning for small group of children and minor activities for the above and shall include data collection, Literature study, Case study, Conceptual design scheme, Detailed Design and presentation drawings which includes Plan, Elevation, Section, Perspective Views etc.,					30	
Unit II	DESIGN PROBLEM – 2					
Multi – storey building: Apartment design / group housing. Design problem shall deal with planning for the above by applying the principles of Intelligent Architecture and shall include data collection, Literature study, Case study, Conceptual design scheme, Detailed Design and presentation drawings which includes Plan, Elevation, Section, Views & Block model.					30	
TOTAL HOURS					60	

Suggested List of Students Activity:

- Presentation Of Data Collection and Literature Study
- The student should conduct a case study of the similar building
- Student should analyse the design data based on the case study
- Student Should Done Site Analysis and Feasibility Report.
- Working Drawing and Design Process Will Be Undertaken.
- Periodic VIVA - VOCE conducted on a weekly/fortnightly based on the course.

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	30 Nos
2.	Stool	30 Nos

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Neufert Architect's data	Ernst Neufert	4th edition, Wiley ,2012.
2.	Time Saver Standards for Building Types	Joseph De Chiara, Michael J Crosbie	McGraw Hill Professional ,2005
3.	Time Saver Standards for Interior Design and Space Planning	Joseph De Chiara, Julius Panero, Martin Zelnik	McGraw Hill 2005

Web-based/Online Resources

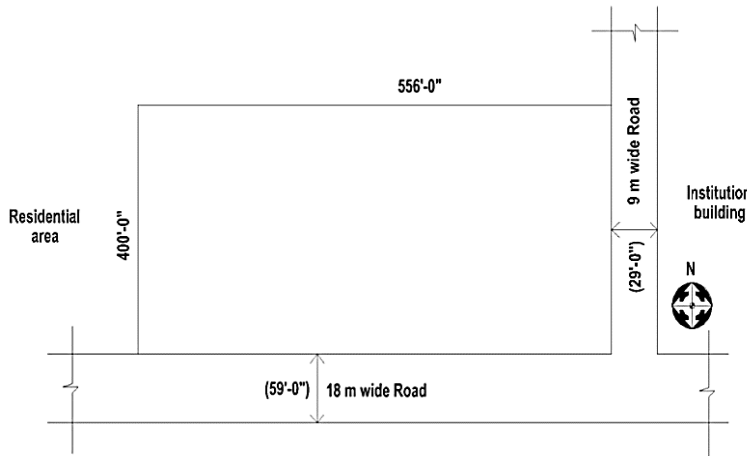
S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/

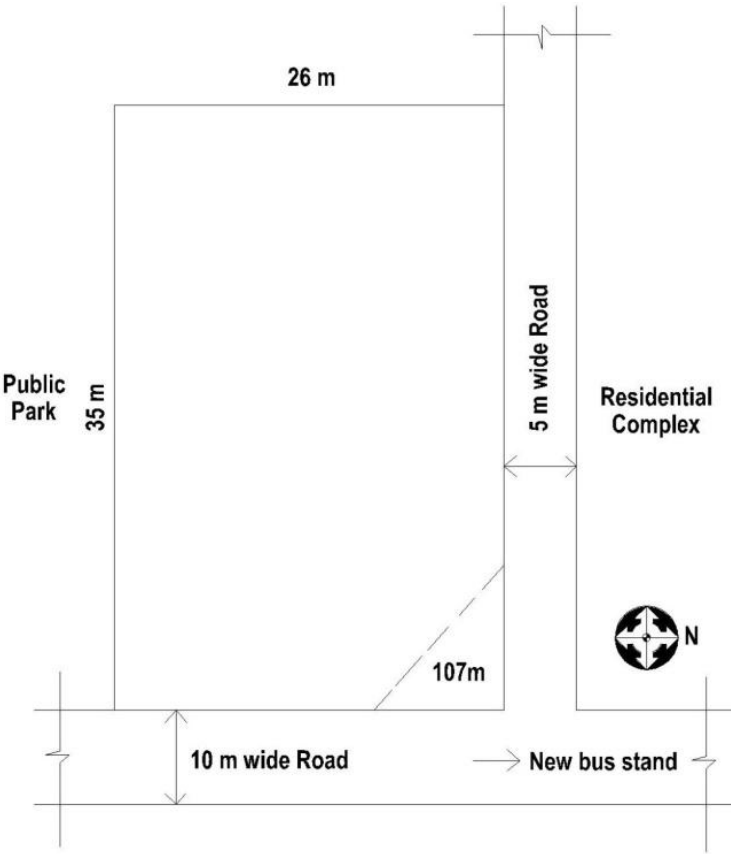
MODEL QUESTION PAPER

Time: 3 Hrs

Max.Marks: 100

Note: Answer any one question. (BY LOT)

Si. No	Name of the Design	CO	PO																		
1	Primary School at Trichy: The rectangular of land which is located in Trichy amongst residential area. (Please refer to the attached plan). • Frame the requirements according to the modern trends. ▪ Apply the rules and regulations of local authority ▪ The built form that would reflect the educational/ children’s activities. Drawing Requirements: <table><tr><th>Part</th><th>Description</th><th>Marks</th></tr><tr><td>A</td><td>Site Plan - 1:400</td><td>15</td></tr><tr><td>B</td><td>Plan - 1:100</td><td>25</td></tr><tr><td>C</td><td>Elevation - 1:100</td><td>20</td></tr><tr><td>D</td><td>Section - 1:100</td><td>20</td></tr><tr><td>E</td><td>View - (not to scale)</td><td>10</td></tr></table> 	Part	Description	Marks	A	Site Plan - 1:400	15	B	Plan - 1:100	25	C	Elevation - 1:100	20	D	Section - 1:100	20	E	View - (not to scale)	10	E5420.1 -5	PO1, PO2, PO3, PO5, PO7
Part	Description	Marks																			
A	Site Plan - 1:400	15																			
B	Plan - 1:100	25																			
C	Elevation - 1:100	20																			
D	Section - 1:100	20																			
E	View - (not to scale)	10																			

2	Apartment at Thanjavur: The proposed apartment building has to be designed with the following requirements: No. of dwelling units - 8 Nos ; Area of each dwelling unit 1200sq.ft • Adequate areas for passages, lobbies, porch, and stair services should be provided wherever necessary. • Apply the rules and regulations of local authority and also apply the intelligent concepts. The rectangular piece of land which is located is the New Bus stand area of Thanjavur amongst high rise residential buildings and has a public park situated adjust to it on the south (please refer to the attached site plan). Front margin (Main Road) - 5m ; Side and rear margins - 3m 	E5420.1 -5	PO1, PO2, PO3, PO5, PO7
---	---	------------	-------------------------

	<table><tr><th>Part</th><th>Description</th><th>Marks</th></tr><tr><td>A</td><td>Site Plan - 1:400</td><td>15</td></tr><tr><td>B</td><td>Plan - 1:100</td><td>25</td></tr><tr><td>C</td><td>Elevation - 1:100</td><td>20</td></tr><tr><td>D</td><td>Section - 1:100</td><td>20</td></tr><tr><td>E</td><td>View - (not to scale)</td><td>10</td></tr></table>	Part	Description	Marks	A	Site Plan - 1:400	15	B	Plan - 1:100	25	C	Elevation - 1:100	20	D	Section - 1:100	20	E	View - (not to scale)	10		
Part	Description	Marks																			
A	Site Plan - 1:400	15																			
B	Plan - 1:100	25																			
C	Elevation - 1:100	20																			
D	Section - 1:100	20																			
E	View - (not to scale)	10																			
3	Viva-voce - 10 marks																				

AAE5520 – COMPUTER STUDIO-II

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE5520

Semester : V SEMESTER

Course Title : COMPUTER STUDIO-II

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
COMPUTER STUDIO-II	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	FLOOR PLANS & TYPICAL FLOOR PLAN	12
II	ROOF PLAN	12
III	WORKING DRAWINGS	12
IV	HATCHING BLOCKS	12
V	FURNITURE- SIMPLE 3D	12
Total		60

COURSE DESCRIPTION

In the present times an Architectural Assistant should be capable of drafting drawings on the computer as most of the Architects lay greater stress on computerized drawings for their ease of drafting, editing, managing and presentation. At the end of the course the students should be able to make 2-D architectural drawings for presentation and construction purposes. The student should get familiar with the latest CAD software.

COURSE OBJECTIVE:

At the completion of the study, the students will be able

- To understand the Fundamentals of software to create a basic 2D and 3D drawing in AutoCAD.
- To enable student the techniques and teaches them to be proficient in the use of AutoCAD to make simple geometric forms, rendering, house plan and other presentation techniques involved.
- To understand the tool for the task, the best way to use that tool and how to create new tools to accomplish tasks more efficiently.
- To prepare complete approval drawing for residential building with help of drawing software. (AutoCAD)

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E5520.1	Develop the floor plans using Auto CAD
E5520.2	Develop the roof plans using Auto CAD
E5520.3	Prepare the elevation drawings
E5520.4	Apply hatching blocks
E5520.5	Develop the building approval drawings and to develop mini project with report

Pre-requisites

Knowledge of basics in Autocad

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5520.1	2	-	2	2	-	-	3	2	-	3
E5520.2	2	-	2	2	-	-	3	2	-	3
E5520.3	2	-	2	2	-	-	3	2	-	3
E5520.4	2	-	2	2	-	-	3	2	-	3
E5520.5	2	-	2	2	-	-	3	2	-	3
Total	10	-	10	10	-	-	15	10	-	15
Correlation Level	2	-	2	2	-	-	3	2	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Assessment Methodology:

	Continuous Assessment (40 Marks)				End Semester Examination (60 Marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Practical Document	Practical Test	Practical Examination
Portion	Design - 1	Design - 2	Design – 1& 2	Design – 1& 2	Design – 1& 2
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10 Marks	100	100
Converted to	10	10	10	10	60
Internal Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	-

DETAILED ALLOCATION OF MARKS: CA1, CA2**Note:**

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	2D MODEL	20
B	DIMENSION	10
C	SPECIFICATION	10
D	DETAILING	10
TOTAL MARKS		50

CA 3: Practical document (Hand written document / Notebook consists of Aim, Apparatus Required, Circuit, Tabulation, Graph, Procedure and Result) should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be

converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The students shall be permitted to select any one by lot for the test. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	2D MODEL (plan, section, elevation)	50
B	DIMENSION	10
C	SPECIFICATION	10
D	DETAILING	20
	VIVA	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE5520 – COMPUTER STUDIO-II

AAE5520		COMPUTER STUDIO-II	L	T	P	C
PRACTICAL			0	0	4	2
Unit I	FLOOR PLANS & TYPICAL FLOOR PLAN					12 Hrs
Theory: Showing dimensions of all rooms / space, thickness of walls, inner & outer plaster line, door / window marking & their position, widths of flight, landing, tread, stairwell (if any), no of treads deep line in floor, drop line in toilet, kitchen & veranda - showing same as above.						2
Practical exercise: 1. Draw a center line and foundation detail for an given a double bedroom residence plan.						3
2. Draw a double bedroom residence plan showing inner & outer plaster line, doors & Windows marking to a suitable scale.						3
3. Draw a site plan for double bedroom residence showing entry, exit, parking, pathway, Landscape, building location, water bodies, bore well, sump, septic tank marking to a Suitable scale.						4
Unit II	ROOF PLAN					12 Hrs
Theory: Slope & ridge line, rain water pipe, anti-siphonage pipe, soil pipe vent pipe, overhead tank, ring main, thickness of parapet wall, and staircase with relevant information.						6
Practical exercise: 4. Draw the terrace plan for a showing the details of rainwater pipe, overhead tank, parapet wall, headroom details.						6
Unit III	WORKING DRAWINGS					12 Hrs
Theory: Showing floor level –plumbing-electrical details-sanction drawing - window marking & their position, widths of flight, landing, tread, stairwell (if any), no of treads deep line in floor, drop line in toilet, kitchen & veranda - showing same as above						2
Practical exercise: 5. Draw an electrical layout for a double bedroom residence.						3
6. Draw a plumbing layout for a double bedroom residence.						3
7. Draw a sanction drawing for a double bedroom residence for village panchayat approval.						4

Unit IV	HATCHING BLOCKS	12 Hrs
BHATCH, hatch commands - boundary hatch options: quick tab advance tab - hatching around text traces, attributes, shapes and solids – editing hatch boundary - boundary commands the concept of blocks – converting objects into a block: block - block commands - nesting of blocks.		2
Practical exercise:		5
8. Draw a kitchen plan, section showing the details of cabinets with dimensions.		5
9. Draw a toilet plan, section showing the details of fixtures, floor trap, and slope line.		5
Unit V	FURNITURE- SIMPLE 3D	12 Hrs
3D commands introduction- creating drawing files -Solid Primitives: Box, Wedge, Cylinder, Cone, Sphere, Torus, Pyramid Region, Extrude, Revolve, Union, Subtract Intersect, Interfere, Polysolid, Sweep, Helix, Loft, Press/Pull - simple interior furniture.		4
Practical exercise:		4
10. Create simple rectangular table with chair.		4
11. Create simple king size bed with side table.		4
TOTAL HOURS		60

Suggested List of Students Activity

- Each student should submit activity related to the course.

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Computer, table & chair	Each 1 per student
2.	Reference manuals	1 per student

SOFTWARE USED:

AUTOCAD 2021

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Learn Autocad ,	Sunil K.Pandey,	S.K. Kataria & Sons, Reprint 2010 Edition, 2010.
2.	Drafting & Design For Architectural & Construction,	Dana.J. Hepler , Paul Ross Wallach, Donald E.Helper	Delmar Pub, 9th Edition, 2012.
3.	Hands on AutoCAD,	Glencoe McGraw-Hill	McGraw-Hill Inc., US, Student edition,2004

Web-based/Online Resources

S.No	Website/Links
1	https://www.autodesk.com/in/products/autocad/overview?mktvar002=5146914 SEM 21249115390 165181856284 kwd57212848&utm_source=GGL&utm_medium=SEM&utm_campaign=GGL_ACAD_AutoCAD_APAC_IN_eComm_SEM_BR_NA_EX_0000_5146914&utm_id=5146914&utm_term=kwd57212848&term=1YEAR&tab=subscription&plc=ACDIST&gad_source=1&gclid=CjwKAjwyo60BhBiEiwAHmVLJbYNup0zs84Xni27BqgogaKIeL5h-Jok8cl0ATOZ3ET-EIHdOu4lvxoCY90QAvD_BwE

MODEL QUESTION PAPER

AAE5520 – COMPUTER STUDIO-II

Time: 3 Hrs

Max.Marks: 100

Note: Answer all the question.

Si. No	Name of the Exercise	CO	PO																														
1	Draw the Building plan shown in figure with Elevation, Section with Dimensioning and specifications using Auto CAD: <table><tr><td>BATH 5'x5'</td><td>W.C 4'1.5"x5'</td><td rowspan="2">KITCHEN 10'x10'</td><td>STORE 10'x5'3"</td></tr><tr><td colspan="2">PASSAGE 9'6"x4'7.5"</td><td>DINING 10'x12'</td></tr><tr><td colspan="3">LIVING 20'3"x16'</td><td></td></tr><tr><td colspan="2">BED ROOM 11'x16'</td><td>VERANDAH 8'6"x10'</td><td></td></tr></table> <table><tr><th>Part</th><th>Description</th><th>Marks</th></tr><tr><td>A</td><td>2D MODEL (plan, section, elevation)</td><td>50</td></tr><tr><td>B</td><td>DIMENSION</td><td>10</td></tr><tr><td>C</td><td>SPECIFICATION</td><td>10</td></tr><tr><td>D</td><td>DETAILING</td><td>20</td></tr></table>	BATH 5'x5'	W.C 4'1.5"x5'	KITCHEN 10'x10'	STORE 10'x5'3"	PASSAGE 9'6"x4'7.5"		DINING 10'x12'	LIVING 20'3"x16'				BED ROOM 11'x16'		VERANDAH 8'6"x10'		Part	Description	Marks	A	2D MODEL (plan, section, elevation)	50	B	DIMENSION	10	C	SPECIFICATION	10	D	DETAILING	20	E5520.1-5	PO1, PO3, PO4, PO7
BATH 5'x5'	W.C 4'1.5"x5'	KITCHEN 10'x10'	STORE 10'x5'3"																														
PASSAGE 9'6"x4'7.5"			DINING 10'x12'																														
LIVING 20'3"x16'																																	
BED ROOM 11'x16'		VERANDAH 8'6"x10'																															
Part	Description	Marks																															
A	2D MODEL (plan, section, elevation)	50																															
B	DIMENSION	10																															
C	SPECIFICATION	10																															
D	DETAILING	20																															
2	Viva-voce - 10 marks																																

AAE5640 – ENVIRONMENTAL SCIENCE FOR ARCHITECTURE

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE5640

Semester : V SEMESTER

Course Title : ENVIRONMENTAL SCIENCE FOR ARCHITECTURE

Course Type : PRACTICUM

L	T	P	C
1	0	2	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ENVIRONMENTAL SCIENCE FOR ARCHITECTURE	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	BASICS OF ECOLOGY	9
II	WATER POLLUTION	12
III	POLLUTION	12
IV	IMPACT OF ENERGY USAGE ON ENVIRONMENT	12
Total		45

COURSE DESCRIPTION

As architects we are responsible for a large amount of environment pollution right from manufacturing of building materials to the creation of a built environment. We are also one of the largest consumers of energy resources when we add to the built Environment. The effect of the built environment has a considerable impact on the un-built environment

COURSE OBJECTIVE:

The aim of the course is to develop the knowledge and skills of the students to enable them to incorporate environmental sensitivity in the built environment thus helping to address the larger challenges of climate change, resilience, resource consumption etc.

COURSE OUTCOMES:

On successful completion of this course, the student will be able to	
E5640.1	Identify different types of environmental pollution and control measures.
E5640.2	Adopt sustainability as a practice in life, society and industry.
E5640.3	The application of knowledge, research skills, laboratory methods and field techniques to Environmental studies and related fields.
E5640.4	Identify environmental hazards affecting air, water and soil quality.
E5640.5	Assess environmental-related risk. Develop controls to reduce or eliminate risk.

Pre-requisites

Basic Knowledge of Science

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5640.1	3	2	3	-	2	-	2	2	3	-
E5640.2	3	2	3	-	2	-	2	2	3	-
E5640.3	3	2	3	-	2	-	2	2	3	-
E5640.4	3	2	3	-	2	-	2	2	3	-
E5640.5	3	2	3	-	2	-	2	2	3	-
Total	15	10	15	-	10	-	10	10	15	-
Correlation Level	3	2	3	-	2	-	2	2	3	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Set up virtual field trips.
- Enrich lessons with multimedia resources.
- Encourage students to work like scientists.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 6	Ex. 7 to 10	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

CA1 and CA2: All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	40
B	PART B - Any One of Exercise (By Lot) From Unit - 3 & 4	50
C	Viva voce	10
TOTAL		100

Note: For the written test 30 MCQ shall be asked from the theory portion

AAE5640 – ENVIRONMENTAL SCIENCE FOR ARCHITECTURE

AAE5640		ENVIRONMENTAL SCIENCE FOR ARCHITECTURE	L	T	P	C
PRACTICUM			1	0	2	2
Unit-I	BASICS OF ECOLOGY					9 Hrs
Theory:						
Introduction to eco system- concept, and sustainable development						2
Resources - renewable and non-renewable.						2
Practical Exercises						
1. To study about renewable and non-renewable energy sources.						5
Unit-II	WATER POLLUTION					12 Hrs
Theory:						
Impurities in water, Cause of water pollution, Source of water pollution.						1
Effect of water pollution on human health, Prevention of water pollution						2
Water treatment processes, Water quality standard.						2
Practical Exercises						
2. To study the quality standards of water.						1
3. Determination of pH Using pH meter.						1
4. Determination of Turbidity using Jackson’s turbidity meter.						1
5. Determination of Total solids and settleable solids Using TDS meter and Imhoff cone.						2
6. Determination of hardness of given water sample						2
Unit-III	POLLUTION					12 Hrs
Theory:						
Noise pollution						3
Source of noise pollution, Unit of noise, Effect of noise pollution, Acceptable noise level, Different method of minimize noise pollution.						
Air Pollution						3
Source of air pollution. Effect of air pollution on human health, economy, plant, animals. Air pollution control methods						
Practical Exercises						
7. Determination of Sound-by-Sound level meter at different locations.						3
8. To study Air quality monitoring (ambient, stack monitoring, indoor air pollution)						3

Unit-IV	IMPACT OF ENERGY USAGE ON ENVIRONMENT	12 Hrs
Theory:		
Global Warming, Green House Effect, Depletion of Ozone Layer, Acid Rain.		3
Ecofriendly Material, Recycling of Material, Concept of Green Buildings.		3
Practical Exercises		
9. To demonstrate the impact of greenhouse gases, such as carbon dioxide, on the warming of the earth.		3
10. To make any eco-friendly building material. (brick, tile etc.)		3
TOTAL HOURS		45

Suggested List of Students Activity:

1. Organize seminar on air pollution and global warming.
2. Visit campus water treatment plant.

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Environmental Pollution	Dr. RK Khitoliya	S Chand & Company, 2006
2.	Environmental Science	Deswal and Deswal	Dhanpat Rai and Co. (P) Ltd, Delhi, 2018.
3.	Environmental Studies	Erach Bharucha	University Press (India) Private Ltd., Hyderabad, 2021

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=-j1rjB_-DhI
4	https://www.youtube.com/watch?v=oRt0zRuFKC4&list=PLLy_2iUCG87CfjAcR9lGNrJ16Fe6OqXzr
5	https://www.youtube.com/@dotediplomae-lectures3545

MODEL QUESTION PAPER

AAE5640 – ENVIRONMENTAL SCIENCE FOR ARCHITECTURE

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Draw and detail the renewable and non-renewable energy sources.	E5640.1	PO1, PO2, PO3, PO5, PO7
PART-B (50 Marks)			
2	Detail and draw the impact of greenhouse gases, such as carbon dioxide, on the warming of the earth.	E5640.2	PO1, PO2, PO3, PO5, PO7
3	Viva-voce - 10 marks		

AAE5740 - BUILDING CONSTRUCTION AND DETAILING-II

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)
 Course Code : AAE5740
 Semester : V SEMESTER
 Course Title : BUILDING CONSTRUCTION AND DETAILING-II
 Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
BUILDING CONSTRUCTION AND DETAILING-II	5	75	40	100*	100	3 Hrs

***Examinations will be conducted for 100 marks and will be converted to 60 marks**

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	FINISHES	10
II	R.C.C AND STEEL STRUCTURES	20
III	TEMPORARY STRUCTURES & STAIRS	20
IV	MISCELLANEOUS STRUCTURES & APPROVAL DRAWING	25
Total		75

COURSE DESCRIPTION

Students of architectural Assistantship at diploma level are supposed to prepare structural drawings, working drawings and detailed drawings of various components of buildings. Also, students are expected to design small residential buildings. For this purpose, it is essential that students are taught various components of building construction comprising of: foundations, super structure, openings, roofs, staircases, flooring and finishing and other allied building components. Therefore, the subject of building construction is very important for students undergoing diploma course in architectural Assistantship. Teachers while imparting instructions are expected to show various components of buildings under construction, make use of models or other audio-visual media to clarify the concepts. While

preparing drawings, teachers should lay considerable stress on proportioning, dimensioning, specification writing and printing and composition of drawing work. Teachers should also emphasis on environmental aspects like lighting, ventilation and orientation of buildings. Students should be asked to maintain a sketch book for recording the observations from site visits. While conducting viva, teachers should point out specific mistakes done by students in the preparation of drawings.

COURSE OBJECTIVE:

At the completion of the study, the students will be able

- To develop understanding about construction principles.
- To develop design abilities by applying basic principles of construction and choosing appropriate materials and techniques.
- To draw the detailed drawing of R.C.C and steel structures, stair and temporary structures.
- To prepare approval drawing by showing all necessary details required for getting approval from the local authority concerned

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E5740.1	Develop knowledge about construction principles.
E5740.2	Acquire the knowledge in RCC & Steel structures
E5740.3	Acquire the knowledge in types of stairs.
E5740.4	Acquire the knowledge in temporary structures
E5740.5	Draw the plan, elevation, section and other details of Approval drawing

Pre-requisites

Knowledge of Building Construction and Detailing – I

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E5740.1	2	2	-	2	2	-	3	2	2	2
E5740.2	2	2	-	2	2	-	3	2	2	2
E5740.3	2	2	-	2	2	-	3	2	2	2
E5740.4	2	2	-	2	2	-	3	2	2	2
E5740.5	2	2	-	2	2	-	3	2	2	2
Total	10	10	-	10	10	-	15	10	10	10
Correlation Level	2	2	-	2	2	-	3	2	2	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of dimension, detailing, scale and its application in construction.
- Each exercise of detailing shall be made clear to students before starting drafting.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 7	Ex. 8 to 12	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

CA1 and CA2: All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	40
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	50
C	Viva voce	10
TOTAL		100

AAE5740 – BUILDING CONSTRUCTION AND DETAILING-II

AAE5740	BUILDING CONSTRUCTION AND	L	T	P	C
PRACTICUM	DETAILING-II	1	0	4	3
Unit I	FINISHES	10 Hrs			
Finishes – Plastering					3
Pointing – Cladding					2
Exercise1. Details of Different plastering, pointing and cladding with different materials on Exterior surfaces (sketch only)					5
Unit II	R.C.C AND STEEL STRUCTURES	20 Hrs			
R.C.C STRUCTURES: Pre – cast concrete construction – pre – stressed concrete construction – joints in concrete work.					3
STEEL WORKS: Mild steel sections for grills and gates – Knowledge of various types of roof trusses and their selection for commercial and industrial buildings –rolling shutters – collapsible gate – metal doors and windows.					3
Exercise 2. Details different types of joints in concrete work.					4
Exercise 3. Details of Grill Gate, Rolling Shutter and Collapsible Gate.					5
Exercise 4. Various steel Trusses for industrial buildings and go down					5
Unit III	TEMPORARY STRUCTURES & STAIRS	20 Hrs			
TEMPORARY STRUCTURES: Scaffolding – Types of Scaffolding – Shoring – Types of Shoring –Underpinning- Methods of Underpinning – Form work – Requirements of Form work – Materials for Form work – Construction of Form work for Columns, Beams and Floor Slabs – Centering for Arches.					3
STAIRS: Location of Stairs – Technical terms – Requirements of a good Stairs – Classification of Stairs – Stairs of different Materials.					2
Exercise 5. Details of Single and double scaffolding.					3
Exercise 6. Details of formwork for shoring, underpinning.					3
Exercise 7. Details of formwork for Beams and Floor Slabs.					3
Exercise 8. Plan and sectional elevation of Dog-legged staircase and Open well staircase (physical model)					3
Exercise 9. Plan and sectional elevation of Spiral staircase and Bifurcated staircase					3
Unit IV	MISCELLANEOUS STRUCTURES & APPROVAL DRAWING	25 Hrs			
MISCELLANEOUS STRUCTURES:					3
Flat slab construction: types of Shell roof structures – Domes – Ruled surface – Folded plates (description of the structures only)					3
Cost effective construction techniques - Rat trap bond, Filler slab, Funicular shell – Use of Pre - Cast technology in construction.					

APPROVAL DRAWING: The basic criteria required for an approval drawing are to studied – The students have to prepare an approval drawing by showing all necessary details required for getting approval from the local authority concerned.	3
Exercise 10. Details of Shell roof	4
Exercise 11. Plan and cross section of Filler slab.	4
Exercise 12. Plan, elevation and Isometric view of Rat Trap Bond	4
Exercise 13. Approval drawing for a residence by showing all necessary details (not for examination)	4
TOTAL HOURS	75

Equipment's Required:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Building Construction	S.C.Rangwala	Charotar Publishing House Pvt. Ltd.,2006.
2.	Building Construction details practical drawing	Banz.H	CBS 2005.
3.	Building Materials	N.Subramanian	1 th edition, oxford university press,2019.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT
4	https://www.youtube.com/watch?v=pwv1Nu3TO4A&list=PLWnoy5z_3BObBvFtBlowxM05D-q0VAWEs

MODEL QUESTION PAPER

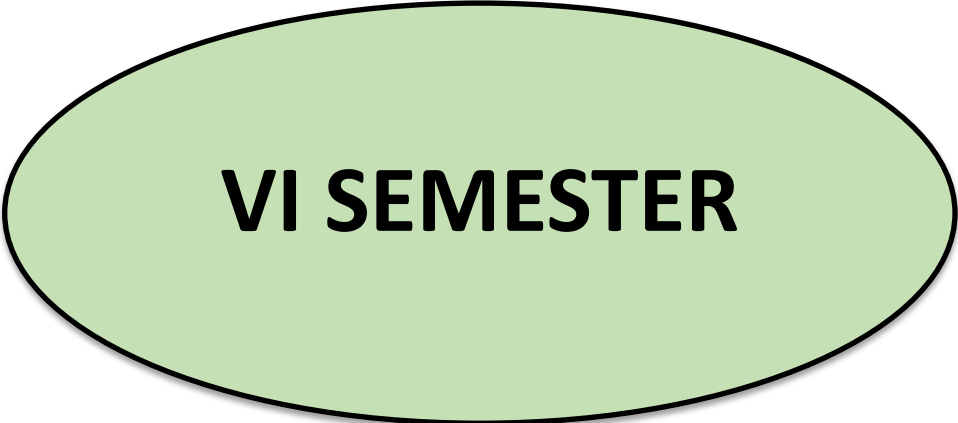
AAE5740 – BUILDING CONSTRUCTION AND DETAILING-II

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Draw the details of Different plastering, pointing and cladding with different materials on Exterior surfaces (sketch only)	E5740.1	PO1, PO2,PO4, PO5, PO7
PART-B (50 Marks)			
2	Draw the Plan, elevation and Isometric view of Rat Trap Bond.	E5740.5	PO1, PO2,PO4, PO5, PO7
3	Viva-voce - 10 marks		



VI SEMESTER

AAE6110 – STRUCTURAL DESIGN

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6110

Semester : VI SEMESTER

Course Title : STRUCTURAL DESIGN

Course Type : THEORY

L	T	P	C
4	0	0	4

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
STRUCTURAL DESIGN	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	REINFORCED CONCRETE STRUCTURES (LSM)	12
II	DESIGN OF BEAMS FOR FLEXURE AND SHEAR BY LSM	12
III	DESIGN OF ONE-WAY SLAB & PLANNING A STAIRCASE	12
IV	DESIGN OF TWO-WAY SLAB BY LSM & COLUMN FOOTINGS	12
V	DESIGN OF COLUMNS BY L.S.M	12
Total		60

COURSE DESCRIPTION

Diploma holders in Architectural Assistantship find employment with private Architects & Civil Engineers and also some percentage of them start their own enterprises. This is a core subject which covers broad elements of RCC design of various structural elements. Diploma holders in Civil Engineering will be required to supervise RCC construction. They may also be required to design simple structural elements and make changes in design depending upon the availability of materials (bars of different diameters). This subject thus deals with elementary design principles as per Indian Standard practice IS: 456 - 2000 by limit state method.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Analyse and design simple RCC elements like singly, doubly reinforced rectangular beams, and singly reinforced simply supported T-beams for flexure and shear by limit state method;
- Design One way/ Two way simply supported slabs by limit state method;
- Design Axially loaded Columns and Footings by limit state method;

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6110.1	Find moment of resistance of beams by LSM
E6110.2	Design the R.C.C. beams for flexure and shear by LSM.
E6110.3	Analyze and design of one-way slabs by LSM and planning a staircase.
E6110.4	Analyze and design of reinforced concrete columns and footings by LSM.
E6110.5	Analyze and design of R.C.C columns by LSM.

Pre-requisites

Basic Mathematics Knowledge

CO-POs & PSOs mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6110.1	3	3	2	2	-	-	3	-	3	2
E6110.2	3	3	2	3	-	-	3	-	3	2
E6110.3	3	3	2	3	-	-	3	-	3	2
E6110.4	3	3	2	3	-	-	3	-	3	2
E6110.5	3	3	2	3	-	-	3	-	3	2
Total	15	15	10	14	-	-	15	-	15	10
Correlation Level	3	3	2	3	-	-	3	-	3	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

This subject is introduced so that diploma holder in Architectural Assistantship may appreciate the basic concepts of structural components of building and are able to apply the

knowledge gained through the subject for the design of simple and small components. Teacher should give simple exercises involving the applications of various concepts and principles being taught in the subject. Teacher may conduct weekly small quiz sessions to know the students' level of understanding and if need be, teacher may reinforce the concepts and principles related to mechanics of structures of elements/members of building components.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question

carries 10 marks.

- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
2
3
4
- II. 5
6
7
8
- III. 9
10
11
12
- IV. 13
14
15
16
- V. 17
18
19
20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6110 – STRUCTURAL DESIGN

AAE6110		STRUCTURAL DESIGN	L	T	P	C
THEORY			4	0	0	4
Unit I	REINFORCED CONCRETE STRUCTURES (LSM)					12 Hrs
1.1 GENERAL						
Reinforced Cement Concrete – Concept of Composite material – Purpose of providing reinforcement – materials used in R.C.C and their requirements – different grades of cement and steel – Characteristic strength and grades of concrete – types of loads on structures as per (IS: 875).						2
1.2 INTRODUCTION TO LIMIT STATE METHOD						
Concept – different limit states- Characteristic strength and design strength of materials – Characteristic loads and design loads - partial safety factors for loads and material strength –						1
Limit state of collapse in flexure – assumptions – stress strain curves for concrete and steel – Stress block – limiting values of neutral axis for different grades of steel (Proof not necessary)						1
1.3 MOMENT OF RESISTANCE OF SIMPLY SUPPORTED BEAMS						
Numerical problems on Moment of resistance of singly/ doubly reinforced rectangular sections.						4
1.4 MOMENT OF RESISTANCE OF T-BEAMS						
Cross sections of Tee and L-beams- Effective width of flange- Neutral Axis and M.R of Singly Reinforced T-Sections-						1
Problems on M.R of Singly Reinforced T-Sections.						3
Unit II	DESIGN OF BEAMS FOR FLEXURE AND SHEAR BY LSM					12 Hrs
2.1 DESIGN OF BEAMS FOR FLEXURE BY LSM						
Effective span of cantilever, simply supported and continuous beams – breadth and depth requirements for beams – control of deflection – minimum depth requirement for stiffness –minimum concrete cover for durability and fire resistance –						1
minimum and maximum reinforcement, spacing for main reinforcement and side face reinforcement as per IS 456-2000-design bending moments - Design of singly reinforced rectangular beams –Numerical problems on cantilever, simply supported beams.						1
						4
2.2 DESIGN OF BEAMS FOR SHEAR BY LSM						
Limit state of collapse in shear – design shear strength of concrete – design strengths of vertical / inclined stirrups and bent up bars in shear – principle of shear design –						1

	critical sections for shear – nominal shear stress. Design of vertical stirrups and bent up bars for rectangular beams using limit state method –simple problems.	1 4
Unit III	DESIGN OF ONE-WAY SLAB & PLANNING A STAIRCASE	12 Hrs
	3.1 DESIGN OF ONE WAY SLAB Classification of slabs – Effective spans - Imposed loads on slabs (IS: 875) – strength and stiffness requirements –minimum and maximum permitted size, spacing and area of main and secondary reinforcement as per IS 456 -2000.	1
	Design of cantilever and simply supported slabs and sun shades by limit state method.(Check for shear and stiffness not necessary)	7
	3.2 PLANNING OF STAIRCASES Component of staircase - Types of stairs according to geometry and structural behavior – effective span of stairs – effective breadth of flight slab – distribution of loads on flights.	1 1
	Numerical problems on planning a staircase of open well and dog legged staircase.	2
Unit IV	DESIGN OF TWO-WAY SLAB BY LSM & COLUMN FOOTINGS	12 Hrs
	4.1 DESIGN OF TWO-WAY SLAB Introduction –Effective span –thickness of slab for strength and stiffness requirements - Middle and edge strips – B.M coefficients – design B.M. – simply supported (Corners are not held down) and restrained slabs (corners held down) – tension and torsion reinforcement requirement.	2
	Design of two-way slabs using B.M. coefficients. Simply supported two-way slabs only (Corners are not held down with access provided /not provided)	4
	4.2 COLUMN FOOTINGS Basic requirements of Footings-Types of R.C footings - Minimum depth below GL- Footings with uniform thickness and varying thickness (sloped footing) – Critical sections for BM, Transverse/Punching Shears – Minimum reinforcement - Development length, Anchorage, Cover, Minimum edge thickness requirements as per IS 456- 2000.	2
	Design of isolated footing (Square and Rectangular only) with uniform thickness by Limit State method. (Problems on Design of size of footing and area of steel only)	4
Unit V	DESIGN OF COLUMNS BY L.S.M	12 Hrs
	Limit state of collapse in compression – assumptions - limiting strength of short axially loaded compression members - effective length of compression members – slenderness limits for columns –	2
	Classification of column - minimum eccentricity for column loads – longitudinal and transverse reinforcement as per I S 456-2000.	2
	Design of axially loaded short columns with lateral ties – square, Rectangular & circular columns. (With lateral ties only)	6
TOTAL HOURS		60

Suggested List of Students Activity:

1. Visit to nearby construction site and study about
 - (i) Foundation and Footing
 - (ii) Column reinforcement
 - (iii) Grade beam, lintel level beam reinforcement arrangements
 - (iv) Reinforcement details for beam and slab
2. Study the bar bending details of structural drawings.
3. Learning the reinforcement arrangements given in SP-34 (Hand book on concrete reinforcement and detailing)
4. Seminars
5. Class assignments

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Limit State Design of Reinforced Concrete	B.C.Punmia,Er. Ashok K. jain & Dr. Arun K. Jain	Lakshmi publications, Delhi, 2016.
2.	Design of R.C.C. Structural Elements	S S Bhavikatti,	11th edition, New Age International Private Limited, 2020.
3.	Design of reinforced concrete structures: IS:456-2000	Raju N. K	4th Edition, CBS Publications, 2019.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/@iit
4	https://www.nptelvideos.com/
5	https://www.youtube.com/@dotediplomae-lectures3545

MODEL QUESTION PAPER

AAE6110 – STRUCTURAL DESIGN

Time: 3 Hrs

Max.Marks: 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO	Questions	Unit	Bloom s Level	Course Outcome	Program Outcomes
I	1. Briefly explain about materials used in R.C.C and their requirements.	I	U	E6110.1	PO1, PO2,PO3, PO4, PO7
	2. A rectangular R.C beam of M20 grade concrete is 250mm wide and 500mm deep to the center of steel. It is reinforced with 3 numbers of 20mm diameter mild steel bars in the tension zone only. Calculate the Moment of Resistance of the section at the limit state of collapse.	I	AP	E6110.1	PO1, PO2,PO3, PO4, PO7
	3. How do you find out the moment of resistance of doubly reinforced rectangular beam?	I	U	E6110.1	PO1, PO2,PO3, PO4, PO7
	4. A singly reinforced T section consists of 1400mm width of flange 120mm thickness of flange reinforced with 3 numbers of 20mm diameter Fe415 steel with an effective depth of 450mm. If the breadth of web is 230mm and grade of concrete is M25. Find its moments of resistance.	I	AP	E6110.1	PO1, PO2,PO3, PO4, PO7
II	5. A simply supported rectangular R.C. beam has to carry an udl of 15KN/m (excluding its self-Weight) on a clear span of 4.5m. The width of supporting wall is 230mm. Find the area of tension reinforcement required. If concrete grade M15 and steel grade Fe415 are to be used for limit state of collapse in flexure.	II	AP	E6110.2	PO1, PO2,PO3, PO4, PO7
	6. A cantilever beam of uniform size carries a dead load of 10KN/m and imposed load of 8KN/m over an effective span of 3m. (Inclusive of its self-weight). Design the support section using M20 grade concrete and Fe 500 grade steel for the limit state of collapse in flexure. Assume	II	AN	E6110.2	PO1, PO2,PO3, PO4, PO7

		mild exposure condition. (Determination of area of tension steel only sufficient)				
	7.	The critical section of a rectangular R.C. beam of effective size 350 mm x 700 mm is subjected to a design shear of 300 KN. The shear strength of concrete is 0.5 N/mm^2 . Two 16 mm $\varnothing$ steel bars of Fe.415 grade is bent up at 45° at the section. Determine the shear for which stirrups are to be designed (limit state method).	II	AP	E6110.2	PO1, PO2, PO3, PO4, PO7
	8.	Explain principles of shear design and critical sections for shear.	II	U	E6110.2	PO1, PO2, PO3, PO4, PO7
III	9.	Write the I.S code provisions for Effective spans & minimum and maximum area of main and secondary reinforcement.	III	R	E6110.3	PO1, PO2, PO3, PO4, PO7
	10.	Design a simply supported roof slab for a library hall of 3.5m x 12m clear size using M20 grade concrete and Fe415 grade steel. Width of walls all-round is 220mm. No access is provided to the roof. Weight of weathering course is 1.25KN/m ² . (Design up to determination of area of tension steel is sufficient)	III	AN	E6110.3	PO1, PO2, PO3, PO4, PO7
	11.	Design the geometrical arrangement of an open well staircase in room of clear size 3.225m X 2.95m if the floor height is 3.15m. The width of landings and flight slabs shall be 925mm.	III	AN	E6110.3	PO1, PO2, PO3, PO4, PO7
	12.	The vertical height between the successive floor of a multi-storeyed residential building is 3.0m. The clear size of the staircase room is 2.10m X 4.25m. Plan a dog legged staircase for the building and show the arrangement by a neat sketch.	III	AN	E6110.3	PO1, PO2, PO3, PO4, PO7
IV	13.	Write the step-by-step procedure for design of two-way slab by limit state method.	IV	U	E6110.4	PO1, PO2, PO3, PO4, PO7
	14.	The floor of the class room 3m x 5m is discontinuous on all its four edges. The corners of the slab are prevented from lifting (corners are held down) 50 mm thick floor finish of unit weight 20 KN/m^3 is to be provided over the slab. Width of support 250mm. Design the slab	IV	AN	E6110.4	PO1, PO2, PO3, PO4, PO7

		with M20 grade concrete and Fe 415 grade steel.(Design up to main reinforcement for shorter span is sufficient)				
	15.	Briefly explain about transverse shear in column footing.	IV	U	E6110.4	PO1, PO2,PO3, PO4, PO7
	16.	An isolated footing of uniform thickness has to be provided for a square column of 400mmx400mm size carries a characteristic load of 1200KN. The safe bearing capacity of soil is 150KN/m ² . Find the required depth of footing.	IV	AP	E6110.4	PO1, PO2,PO3, PO4, PO7
V	17.	What are the assumptions made in limit state of collapse in compression?	V	R	E6110.5	PO1, PO2,PO3, PO4, PO7
	18.	Explain about classification columns.	V	U	E6110.5	PO1, PO2,PO3, PO4, PO7
	19.	Design a circular column with circular rings using concrete grade M20 and steel grade Fe 415 to carry an axial to of 700 KN. The eff length of the column is 3.5 m. Mid steel bars may be used for transverse reinforcement ignore minimum eccentricity.	V	AN	E6110.5	PO1, PO2,PO3, PO4, PO7
	20.	Design a short square column using M15 grade concrete and mild steel reinforcement to carry an axial load of 800 KN by limit state method.	V	AN	E6110.5	PO1, PO2,PO3, PO4, PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking (HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6210 – QUANTITY SURVEYING AND COST ESTIMATION

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6210

Semester : VI SEMESTER

Course Title : QUANTITY SURVEYING AND
COST ESTIMATION

L	T	P	C
3	0	0	3

Course Type : THEORY

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
QUANTITY SURVEYING AND COST ESTIMATION	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION, APPROXIMATE ESTIMATES	9
II	SPECIFICATION & REPORT WRITING	9
III	MEASUREMENTS& MATERIAL REQUIREMENT, DATA	9
IV	VALUATION, RENT FIXATION	9
V	DETAILED ESTIMATE	9
Total		45

COURSE DESCRIPTION

Estimating and Costing is a vital part of any construction project after preparation of drawing. No project can begin without total estimation and costing. The entire cost of construction and the infrastructure used for the purpose of construction is estimated and the final costing is one on the basis of which a certain percentage of the project cost is paid to the architect and other consultants involved in the project. This course enables the students to calculate the estimated construction cost of a building. This course also enables the students

to know the present material and labour cost and to differentiate between them. To estimate the construction cost of a designed building is very important for an architect as it helps him/her to work within a budget and also helps his/her clients to know the finance he/she would have to arrange at various stages of construction. Thus, this course helps the students to work efficiently in the field of architecture.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Study the types of estimates.
- Know the different methods of taking out quantities.
- Prepare the rough cost estimate, detailed estimates, detailed reports, specifications, abstract of cost and material requirements for a small building.
- Calculate quantities of materials and analysis of rates for each item of work.
- Value a building and also fix the rate.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6210.1	Find out the approximate estimate of buildings.
E6210.2	Prepare a report with specifications for different types of buildings.
E6210.3	Analyze the rates for various items of work.
E6210.4	Analyze the valuation of building for different specifications.
E6210.5	Develop the detailed and an Abstract Estimate for all type Buildings.

Pre-requisites

Knowledge of basic Mathematics, Materials of Construction, Construction practice, reading drawings and plans.

CO-POs & PSOs mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6210.1	3	3	2	-	-	-	3	-	3	2
E6210.2	3	3	2	-	-	-	3	-	3	2
E6210.3	3	3	2	-	-	-	3	-	3	2
E6210.4	3	3	2	-	-	-	3	-	3	2
E6210.5	3	3	2	-	-	-	3	-	3	2
Total	15	15	10	-	-	-	15	-	15	10
Correlation Level	3	3	2	-	-	-	3	-	3	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The course content should be taught and curriculum should be implemented with the aim to develop required skills in students so that they are able to acquire following competency.

- Calculate the estimated construction cost of a given building and prepare different types of detailed estimates through rate analysis.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question

carries 10 marks.

- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
2
3
4
II. 5
6
7
8
III. 9
10
11
12
IV. 13
14
15
16
V. 17
18
19
20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6210 –QUANTITY SURVEYING AND COST ESTIMATION

AAE6210		QUANTITY SURVEYING AND COST ESTIMATION		L	T	P	C
THEORY				3	0	0	3
Unit I	INTRODUCTION, APPROXIMATE ESTIMATES						9 Hrs
1.1INTRODUCTION							
Estimation – Definition of Estimate - Types of Estimates – Approximate Estimate – Detailed Estimate – Revised Estimate - Supplementary Estimate – Sub Estimate – Annual maintenance Estimate – Repair Estimate – Complete Estimate.							2
1.2 APPROXIMATE ESTIMATES							
Approximate estimate – Types – Plinth area method – Cubical content method – Service unit method- Typical Bay method –							2
Simple problems on preliminary estimate of a building project.							5
Unit II	SPECIFICATION &REPORT WRITING						9 Hrs
2.1 SPECIFICATION							
Specification – Necessity – Types of Specification – Essential requirements of Specification - Steps involved in Standard Specification.							1
Detailed Specifications for the following items of works							4
• Clearing and Levelling site • Excavation of Trenches for foundations. • Laying plain cement concrete bed, Footings and Plinth with R.R. • Masonry and Brick Masonry. • Filling in foundation and Plinth. • Super structure with Brick Masonry in Cement Mortar. • R.C.C works. • Plastering works • Cement concrete flooring • Wood works like Doors and Windows							
2.2 REPORT WRITING							
Report Writing – Points to be considered while a report writing – Writing typical reports for works such as							1
i. Buildings – Residential / Hospital / School							1
ii. Demolishing a building							1
iii. Water supply system for a village							1

Unit III	MEASUREMENTS& MATERIAL REQUIREMENT, DATA	9 Hrs
3.1 MEASUREMENTS & MATERIAL REQUIREMENT		
Units of measurements for works and materials - Degree of accuracy in measurements - Deduction for openings in masonry, plastering and white washing area –		1
Painting co-efficient – out turn of works - working out of materials requirements – cement, sand, bricks and aggregates.		2
3.2 DATA		
Data – Theory – Main and sub data – Observed data - Lead statement –Schedule of rates		1
– Standard data book - Sundries – Lump sum provision -Preparation of data using standard data and schedule of rates –		1
Brick and Stone masonries – Lime Concrete and Cement Concrete - Flooring Works and weathering course - R.C. works for slab, sunshade, beam and column -Partition wall –		2
Form works for beams and slabs - White washing and Painting works - A.C. sheet roofing – Wall plastering – ceiling plastering.		2
UNIT IV	VALUATION, RENT FIXATION	9 Hrs
4.1 VALUATION		
Valuation – Purpose of Valuation- Types of Valuation - Book value – Market value – Salvage value – Scrap value – Depreciation -Obsolescence - Sinking fund – Mortgage and lease -Annuity-Definition and types- Simple Problems on Present value of building only		2
		3
4.2 RENT FIXATION		1
Fixation of rent – Out goings – Gross and net income – Years Purchase -Capital Cost - Standard rent – Market rent –		3
Economical rent Problems on rent calculation only (Simple Problems)		
UNIT V	DETAILED ESTIMATE	9 Hrs
5.1 STAGES OF DETAILED ESTIMATE		
Taking off quantities – Systems – Trade system – Group system – Advantages of group system – Methods – Long wall and short wall method– Centre line method –		1
Abstract estimate – Lump sum provision and contingencies – quantity surveyor – duties – essential qualities.		1
5.2 DETAILED ESTIMATE		
Detailed estimate for buildings using Trade system. Taking off quantities for all items of works in the following types of buildings by centre line method.		2
i)Taking the quantities of single room with R.C.C Roof.		1
ii)Taking the quantities of single storey Residential building with two rooms (Load bearing structure) with RCC roof.		2
iii)Taking the quantities of single storey Residential building with two (Framed structure) with RCC roof.		2
TOTAL HOURS		45

Suggested List of Students Activity:

- Visit to nearby construction site and study about the component of buildings.
- Taking measurements and find the quantity of various items of works of the buildings in college campus.
- Conduct Seminars by group of students
- Class assignments to prepare the detailed estimate.

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Estimating and Costing	B.N.Dutta	CBS Publishers & Distributors Private Limited,2021
2.	A Text Book of Estimating and Costing (Civil)	D.D Kohli, and R.C Kohli	S.Chand & Company Ltd., 2005.
3.	Estimation, Costing and valuation book	Rangwala	charotar Publishing House Pvt. Ltd ,17 st , edition,2017.

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://youtu.be/DhoLPrGh_kE
4	https://youtu.be/Om24w_EcWIE

MODEL QUESTION PAPER

AAE6210 – QUANTITY SURVEYING AND COST ESTIMATION

Time: 3 Hrs

Max.Marks: 100

PART- A (5X 2 X 10 Marks = 100 Marks)

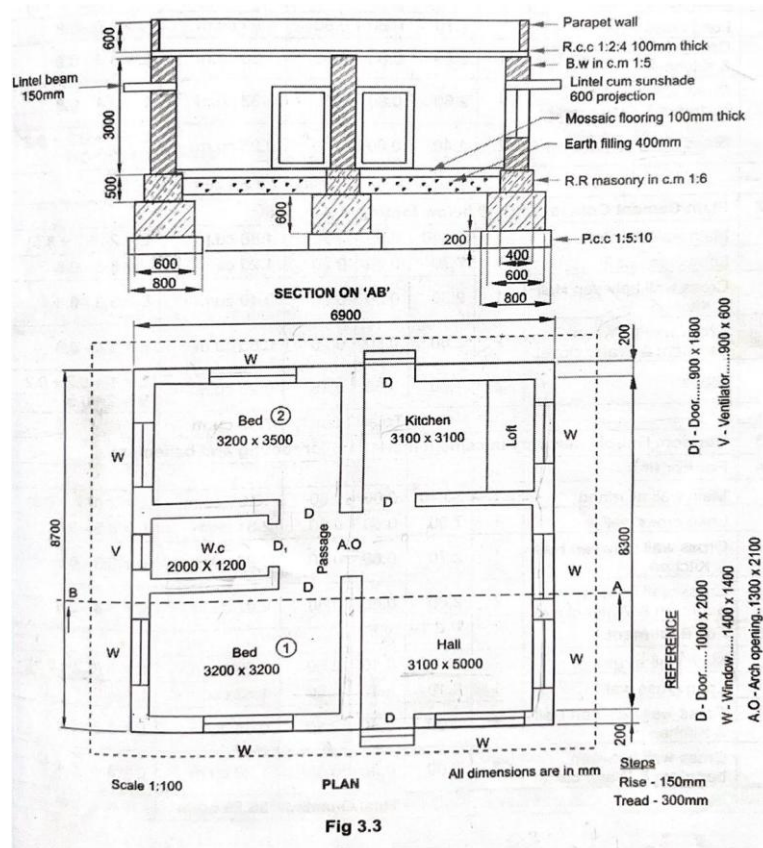
Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO		Questions	Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	The actual expenditure incurred in the construction of a single storey residential Building of plinth area 72m^2 is found to be Rs. 4, 84,500. It is now proposed to Construct a similar building of same height and specifications with a plinth area of 90m^2 at a place where the cost of materials and labour is 15% more. Estimate approximately the cost of the proposed building	I	AP	E6210.1	PO1, PO2, PO3, PO7
	2.	Explain in detail about the approximate estimate and it types.	I	R	E6210.1	PO1, PO2, PO3, PO7
	3.	Explain in detail about the types of estimates.	I	R	E6210.1	PO1, PO2, PO3, PO7
	4.	The cost of construction of an industrial building which has 6 bays of 4m span each and 12m width is Rs.16,20,000/-. Determine the approximate cost of construction of a similar building with 8 bays.	I	AP	E6210.1	PO1, PO2, PO3, PO7
II	5.	Write a detailed specification for brickwork in cement mortar 1:5 using I class bricks in super structure.	II	U	E6210.2	PO1, PO2, PO3, PO7
	6.	Write down the necessity of specification. Enumerate the essential requirements of good specification writing.	II	U	E6210.2	PO1, PO2, PO3, PO7
	7.	Write a report to accompany an estimate of the proposed construction of a hospital building.	II	U	E6210.2	PO1, PO2, PO3, PO7
	8.	Write down the points to be considered while report writing.	II	R	E6210.2	PO1, PO2, PO3, PO7
III	9.	Work out the cement and sand required for plastering with CM 1:4, 12mm thick on an area	III	AN	E6210.3	PO1, PO2, PO3, PO7

		of 150sq.m. Cement mortar required for plastering 10sq.m area is 0.1m^3 .				
	10.	Work out the materials required for foundation concrete in CC1:4:8 using 40mm broken stone – 54m^3 Materials required for CC 1:4:8 using 40mm broken stone – 10m^3 . 40mm broken stone - 9m^3 CM 1:4 - 3.8m^3	III	AN	E6210.3	PO1, PO2,PO3, PO7
	11.	Explain in detail about the measurements and material requirement in construction of building.	III	R	E6210.3	PO1, PO2,PO3, PO7
	12.	A person has invested Rs. 1,50,000 on a plot and Rs.3,84,000 on construction of a Building over it expecting 6% return. Assuming the cost of annual repairs is Rs. 3000 and other outgoings to be 15% of gross rent. Calculate monthly rent, if the annual sinking Fund coefficient is 0.01.	III	AP	E6210.3	PO1, PO2,PO3, PO7
IV	13.	Briefly explain about purpose of valuation and types of valuation.	IV	R	E6210.4	PO1, PO2,PO3, PO7
	14.	A building was constructed 10 years back at a cost of Rs.6,00,000/-. It is seen from the P.W.D schedule of rates that the present day rates of materials and labour have increased by 40% over the original rates. What is the present value of the building if the standard rate of depreciation is 1.5%.	IV	AP	E6210.4	PO1, PO2,PO3, PO7
	15.	Write short notes out goings, Gross and net income, Years Purchase & Capital Cost.	IV	U	E6210.4	PO1, PO2,PO3, PO7
	16.	Calculate the standard rent of a Government residential building newly constructed from the following data, Cost of construction of the building- Rs.12,00,000/- Cost of construction of out house- Rs.1,20,000/- Cost of sanitary, electrical and internal water supply arrangements= Rs.1,80,000/- Cost of establishment incurred for the	IV	AP	E6210.4	PO1, PO2,PO3, PO7

		construction work= Rs.40,000/- Cost of compound wall- Rs.40,000/- Cost of site=Rs.2,00,000/-				
V	17.	What are the duties and essential qualities of quantity surveyor?	V	R	E6210.5	PO1, PO2,PO3, PO7
	18.	Prepare the detailed estimate for the following items of works for the building 'Two rooms with RCC roof' given in Fig.3.3. Flooring with CC 1:4:8, 150mm thick in m ³ , RCC roof slab in CC 1:2:4, 120mm thick in m ³	V	AN	E6210.5	PO1, PO2,PO3, PO7
	19.	Prepare the detailed estimate for the following items of works for the building 'Two rooms with RCC roof' given in Fig.3.3. Brick work in CM 1:5 in super structure and parapet in m ³ .	V	AN	E6210.5	PO1, PO2,PO3, PO7
	20.	Prepare the detailed estimate for the following items of works for the building 'Two rooms with RCC roof' given in Fig.3.3. Wall Plastering with CM 1:5, 12 MM Thick.	V	AN	E6210.5	PO1, PO2,PO3, PO7



QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

ELECTIVE - III

AAE6311 – ELEMENTS OF INTERIOR DESIGN

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6311

Semester : VI SEMESTER

Course Title : ELEMENTS OF INTERIOR DESIGN

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ELEMENTS OF INTERIOR DESIGN	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION AND DESIGN THEORY OF INTERIORS	8
II	FUNCTION AND PLANNING	9
III	DETAILING OF SIMPLE HOUSEHOLD FURNITURE	9
IV	FINISHES, FURNISHING & ACCESSORIES	10
V	LAYOUT PLANNING AND DETAILING	9
Total		45

COURSE DESCRIPTION

Student of Architectural Assistantship at the diploma level are expected to know design and execute building interiors. Therefore the basic knowledge of building construction and detailed knowledge of building material is required with the knowledge of this subject the students can help in handling interior project from the concept stage to the project implementation stage. Also this exercise if necessary since the interior are becoming more integral part of architecture and considerable stress is being laid in interior design. Teacher while imparting instruction are expected to explain concept and principle introducing various building finishing materials. The course would be supplemented with literature and

sample of materials.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- To study about the basics of interiors, furniture's, decorative finishes and its applications.
- To know the layout plans of Interior

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6311.1	Express the elements and principles of design and their applications.
E6311.2	Demonstrate the particular function of how to design the space.
E6311.3	Apply the contemporary materials and construction technology of furniture.
E6311.4	Apply the contemporary materials and construction technology of furniture.
E6311.5	Apply the layout planning and detailing.

Pre-requisites

Nil

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6311.1	2	-	2	-	2	-	3	3	-	2
E6311.2	2	-	2	-	2	-	3	3	-	2
E6311.3	2	-	2	-	2	-	3	3	-	2
E6311.4	2	-	2	-	2	-	3	3	-	2
E6311.5	2	-	2	-	2	-	3	3	-	2
Total	10	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Power point presentation
- Videos

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2: Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

- Four questions will be asked from every unit. Students should write any two questions. Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
2
3
4
- II. 5
6
7
8
- III. 9
10
11
12
- IV. 13
14
15
16
- V. 17
18
19
20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6311 – ELEMENTS OF INTERIOR DESIGN

AAE6311		ELEMENTS OF INTERIOR DESIGN		L	T	P	C
THEORY				3	0	0	3
Unit I	INTRODUCTION AND DESIGN THEORY OF INTERIORS						8 Hrs
Importance of Interior Design Environment							2
Elements of design							2
Principles of design							2
Elements and Application of Principles of design in Interiors and their uses in Interior Design							2
Unit II	FUNCTION AND PLANNING						9 Hrs
Activities and Function - Functional contents of an Interior Environment							2
Planning inter-relationship of Functional Spaces and Interior Elements							2
Anthropometrical study							2
Dimension Standards of Interior Elements							2
Furniture, Activity and Circulation							1
Unit III	DETAILING OF SIMPLE HOUSEHOLD FURNITURE						9 Hrs
Floor and Wall Furniture – Materials – Specification							2
Joinery and finishes.							1
Ready to assemble modular units in Interior design.							2
Simple design of household furniture such as Tables, Chairs, Sofa Sets, Cupboards, Room dividers, built-in Fitments and Detailed Drawing of two types in each for Residence.							2
Unit IV	FINISHES, FURNISHING & ACCESSORIES						10 Hrs
Various types of Finishes for Walls, Floors and Ceiling. Furnishing – Drapery, Blinds, Upholstery and Household Linen accessories – Artifacts, Paintings, Murals, Sculptures, Plants (Natural & Artificial), Aesthetic and functional Lighting and other accessories, Decorative accessories for Kitchen and Bathroom - Study on furniture for specific types of interiors like office furniture, children's furniture, residential furniture, display systems, etc.							2
							2
							2
							2
							2
Unit V	LAYOUT PLANNING AND DETAILING						9 Hrs
(Including Integrated Service Layouts): Layout of floor plan, wall panels, furniture, false ceiling, Air conditioning and Ducting - Residential Spaces and Restaurant- Develop a working drawing for interior design detailing for residential & office spaces, hotel lobbies etc							2
							2
							2
							1
TOTAL HOURS							45

Suggested List of Students Activity:

The students are also expected to go through Architecture Journals like Inside – Outside, Interiors Today, Design and Interiors, Architect and builder, Builders Friend etc.

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Textbooks

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Creating Luminous Spaces: Use the five Elements For Balance and harmony	Maureen K Calamia	Conari Press, 2018
2.	The Interior Design Reference & Specification	Chris Grimley & Mimi Love	Rockfort Publishers,2018
3.	Elements of Interior Design	Fawn Galli & Molly Fitzsimons	Rizzoli International Publications,2022

Web-based/Online Resources

S.No	Website/Links
1	https://www.youtube.com/watch?v=m8fcpZxrkwI&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF
2	https://www.youtube.com/watch?v=vhDztZYARSM&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF&index=2
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6311 – ELEMENTS OF INTERIOR DESIGN
--

Time: 3 Hrs

Max.Marks: 100

PART- A (5 x 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO	Questions	Unit	Blooms Level	Course Outcome	Program Outcomes
I	1. Explain about the importance of interior design environment.	I	U	E6311.1	PO1, PO5,PO7
	2. Describe the role of colors in interior design interior design.	I	R	E6311.1	PO1, PO5,PO7
	3. Explain the following with sketch. i)Hierarchy ii) Balance	I	R	E6311.1	PO1, PO5,PO7
	4. Explain about the uses of elements in interior design.	I	R	E6311.1	PO1, PO5,PO7
II	5. Explain the anthropometric detail of a bedroom.	II	U	E6311.2	PO1, PO5,PO7
	6. Explain the different activities and functions of the dining room.	II	U	E6311.2	PO1, PO5,PO7
	7. Sketch the layout of a kitchen of size 3m x 4m.	II	U	E6311.2	PO1, PO5,PO7
	8. Explain the difference between monochromatic and complementary colours.	II	R	E6311.2	PO1, PO5,PO7
III	9. Explain about the different types of materials used for furniture and its advantages.	III	R	E6311.3	PO1, PO5,PO7
	10. Sketch any two contemporary house hold furniture.	III	U	E6311.3	PO1, PO5,PO7
	11. Draw a furniture layout for a bed room of size 4 m x 3 m.	III	R	E6311.3	PO1, PO5,PO7
	12. Explain about modular design in interior design.	III	U	E6311.3	PO1, PO5,PO7
IV	13. Describe the various types of wall finishes.	IV	U	E6311.4	PO1, PO5,PO7
	14. Explain the advantages of using plants in interior of a residence.	IV	R	E6311.4	PO1, PO5,PO7
	15. Sketch the mural design for a wall (4m x 4m) of a restaurant.	IV	U	E6311.4	PO1, PO5,PO7
	16. Sketch any three children's furniture with	IV	U	E6311.4	PO1,

		dimensions.				PO5,PO7
V	17.	Explain about false ceiling and its advantages.	V	R	E6311.5	PO1, PO5,PO7
	18.	Draw a working drawing for a residential project.	V	R	E6311.5	PO1, PO5,PO7
	19.	Draw the electrical layout for a small office.	V	U	E6311.5	PO1, PO5,PO7
	20.	Explain about the PVC wall panel and its applications.	V	U	E6311.5	PO1, PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6312

Semester : VI SEMESTER

Course Title : MODERN ARCHITECTURE

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
MODERN ARCHITECTURE	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION TO MODERN ARCHITECTURE	9
II	WORKS OF THE MASTERS	9
III	WORKS OF THE EARLY 20TH CENTURY ARCHITECTS	9
IV	LATE AND POST MODERNISM	9
V	EMERGING CONCEPTS OF MODERN ARCHITECTURE	9
Total		45

COURSE DESCRIPTION:

The modern buildings and literature of the first half of the twentieth century, focusing primarily on Europe but extending also to non-western countries. It begins with the "crisis of modernity" that plagued most of western civilization in the late 19th-century, and then focus on the major movements of both the avant-garde and other responses to modernity from 1900-1945. The focus is on the art of architecture, architecture's ability to influence culture through experimentation and provocative thinking, even when technological, social, etc.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Study of evolution of various styles of art and architecture as a response to climate, culture and socio-political conditions by taking examples from Modern Architecture.
- Understand fundamental design principles (visual art principles) and resulting architectural expression; appropriate to place and people.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6312.1	Understand the changes in architecture during industrial revolution all over the world.
E6312.2	Know the contribution of master architects in application of modern building materials and their architectural concepts.
E6312.3	Analyze the Works of the early 20th century Architects and their Architectural Concepts
E6312.4	Outline the architecture that evolved in Late and Post Modernism Era.
E6312.5	Study the emerging concepts of Modern Architecture

Pre-requisites

Nil

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6312.1	3	-	2	-	2	-	3	3	-	2
E6312.2	3	-	2	-	2	-	3	3	-	2
E6312.3	3	-	2	-	2	-	3	3	-	2
E6312.4	3	-	2	-	2	-	3	3	-	2
E6312.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any

two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
- 2
- 3
- 4
- II. 5
- 6
- 7
- 8
- III. 9
- 10
- 11
- 12
- IV. 13
- 14
- 15
- 16
- V. 17
- 18
- 19
- 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6312 – MODERN ARCHITECTURE

AAE6312		MODERN ARCHITECTURE	L	T	P	C
THEORY			3	0	0	3
Unit I	INTRODUCTION TO MODERN ARCHITECTURE					9 Hrs
Beginning of modern architecture - Neoclassicism in the 18th century						2
Industrial revolution - eclecticism and the architectural predicament in the 19 th century						2
Art Nouveau- morphed forms						2
Plastic treatment of plans						1
Chicago School- evolution of the high-rise office building						2
Unit II	WORKS OF THE MASTERS					9 Hrs
Works Of F.L. Wright and Organic Architectur						3
Le Corbusier, Mies Van der Rohe and Minimalism						3
Walter Gropius and Bauhaus						3
Unit III	WORKS OF THE EARLY 20TH CENTURY ARCHITECTS					9 Hrs
Adolf Loos and Internationalism						2
G.T. Reitveld and De Stijl Architecture						2
Alvar Aalto and Scandinavian Regionalism						2
Louis Kahn, Eero Saarinen , Philip Johnson						3
Unit IV	LATE AND POST MODERNISM					9 Hrs
The architectural philosophy and works of Richard Meier						3
Kenzo Tange, Arata Isozaki, Frank Gehry, Zaha Hadid.						3
Hi-Tech architecture – Norman Foster, Richard Rogers.						3
Unit V	EMERGING CONCEPTS OF MODERN ARCHITECTURE					9 Hrs
Adaptive reuse, parametric design						2
Biomimicry, mobius strip						2
New materials and their application, Seismic safety in the buildings and their integration with architectural problems						3
Energy efficient built environment with emphasis on energy simulation modelling.						2
TOTAL HOURS						45

Suggested List of Students Activity:

The students are also expected to go through Architecture Journals like Inside – Outside, Interiors Today, Design and Interiors, Architect and builder, Builders Friend etc.

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Textbooks

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Modern Architecture Since 1900	William J R Curtis	3 rd Edition , Phaidon Press Limited,2005
2.	Modern Architecture A-Z	Aurelia Taschen	Taschen America Lic,2016
3.	Destination Architecture: The guide to 1000 Contemporary Buildings	Phaidon	Phaidon Press, 2017

Web-based/Online Resources

S.No	Website/Links
1	https://www.youtube.com/watch?v=m8fcpZxrkwI&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF
2	https://www.youtube.com/watch?v=vhDztZYARSM&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF&index=2
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER**AAE6312 – MODERN ARCHITECTURE****Time: 3 Hrs****Max.Marks: 100****PART- A (5 X 2 X 10 Marks = 100 Marks)**

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Explain in detail about the Beginning of modern architecture.	I	U	E6312.1	PO1, PO5, PO7
	2.	Explain about the Art Nouveau style with suitable example.	I	R	E6312.1	PO1, PO5, PO7
	3.	Discuss the salient features of high-rise office building.	I	R	E6312.1	PO1, PO5, PO7
	4.	Detail out the evolution of the high-rise office building.	I	R	E6312.1	PO1, PO5, PO7
II	5.	Enumerate any one Work of F.L. Wright with sketches.	II	U	E6312.2	PO1, PO5, PO7
	6.	Explain in detail about the life history of Le Corbusier.	II	U	E6312.2	PO1, PO5, PO7
	7.	Describe about the salient features of minimalist building.	II	U	E6312.2	PO1, PO5, PO7
	8.	Detail out the organic architecture with example.	II	R	E6312.2	PO1, PO5, PO7
III	9.	Explain about the Scandinavian Regionalism.	III	R	E6312.3	PO1, PO5, PO7
	10.	Detail about the Viipuri library by Alvar Aalto.	III	U	E6312.3	PO1, PO5, PO7
	11.	Enumerate the ideologies of Louis Kahn with suitable example.	III	R	E6312.3	PO1, PO5, PO7
	12.	Enumerate the characteristics of international architecture.	III	U	E6312.3	PO1, PO5, PO7
IV	13.	Explain in detail about the architectural philosophy of Richard Meier.	IV	U	E6312.4	PO1, PO5, PO7
	14.	Explain in detail about the works of Zaha Hadid.	IV	R	E6312.4	PO1, PO5, PO7
	15.	Explain about the salient features of Hi-Tech architecture.	IV	U	E6312.4	PO1, PO5, PO7

	16.	Enumerate the Hi-Tech architecture.	IV	U	E6312.4	PO1, PO5,PO7
V	17.	Explain in detail about Adaptive reuse with suitable example.	V	R	E6312.5	PO1, PO5,PO7
	18.	Describe in detail about Biomimicry architecture.	V	R	E6312.5	PO1, PO5,PO7
	19.	Explain in detail about the Energy efficient built environment with emphasis on energy simulation modelling.	V	U	E6312.5	PO1, PO5,PO7
	20.	Explain the concept of Parametric architecture with examples.	V	U	E6312.5	PO1, PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6313 – DISASTER MANAGEMENT AND MITIGATION

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6313

Semester : VI SEMESTER

Course Title : DISASTER MANAGEMENT
AND MITIGATION

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
DISASTER MANAGEMENT AND MITIGATION	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION ON DISASTER	9
II	RISK AND VULNERABILITY ANALYSIS	9
III	DISASTER PREPAREDNESS AND RESPONSE	9
IV	REHABILITATION, RECONSTRUCTION AND RECOVERY	9
V	DISASTER MANAGEMENT IN INDIA	9
Total		45

COURSE DESCRIPTION:

The course is to impart general knowledge about disasters and how to act during emergencies.

COURSE OBJECTIVE:

The course is intended to provide a general concept in the dimensions of disasters caused by nature beyond the human control as well as the disasters and environmental hazards induced by human activities with emphasis on disaster preparedness, response and recovery.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6313.1	Outline the basic information and precautions regarding various disasters
E6313.2	Decide first action to be taken under various disasters
E6313.3	To know about Disaster Preparedness and Response
E6313.4	To know about Rehabilitation, Reconstruction and Recovery
E6313.5	Identify the organizations in India which are dealing with disasters

Pre-requisites

Nil

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6313.1	3	-	-	-	2	-	3	3	-	2
E6313.2	3	-	-	-	2	-	3	3	-	2
E6313.3	3	-	-	-	2	-	3	3	-	2
E6313.4	3	-	-	-	2	-	3	3	-	2
E6313.5	3	-	-	-	2	-	3	3	-	2
Total	15	-	-	-	10	-	15	15	-	10
Correlation Level	3	-	-	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations etc.,

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
 2
 3
 4
- II. 5
 6
 7
 8
- III. 9
 10
 11
 12
- IV. 13
 14
 15
 16
- V. 17
 18
 19
 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6313 – DISASTER MANAGEMENT AND MITIGATION

AAE6313		DISASTER MANAGEMENT AND MITIGATION	L	T	P	C
THEORY			3	0	0	3
Unit I	INTRODUCTION ON DISASTER					9 Hrs
Different Types of Disaster						2
Natural Disaster: such as Flood, Cyclone, Earthquakes, Landslides etc						2
Man-made Disaster: such as Fire, Industrial Pollution, Nuclear Disaster, Biological						2
Disasters, Accidents (Air, Sea, Rail & Road), Structural failures (Building and Bridge),						2
War & Terrorism etc. Causes, effects and practical examples for all disasters.						1
Unit II	RISK AND VULNERABILITY ANALYSIS					9 Hrs
1. Risk: Its concept and analysis						2
Strategic Development for Risk Reduction						2
2. Vulnerability: Its concept and analysis						2
Strategic Development for Vulnerability Reduction						3
Unit III	DISASTER PREPAREDNESS AND RESPONSE					9 Hrs
Preparedness-						4
1. Disaster Preparedness: Concept and Nature						5
2. Disaster Preparedness Plan						
3. Prediction, Early Warnings and Safety Measures of Disaster.						
4. Role of Information, Education, Communication, and Training,						
5. Role of Government, International and NGO Bodies.						
6. Role of IT in Disaster Preparedness						
7. Role of Engineers on Disaster Management.						
Response-						5
1. Disaster Response: Introduction						
2. Disaster Response Plan						
3. Communication, Participation, and Activation of Emergency Preparedness Plan						
4. Search, Rescue, Evacuation and Logistic Management						
5. Role of Government, International and NGO Bodies						
6. Psychological Response and Management (Trauma, Stress, Rumor and Panic)						
7. Relief and Recovery						
8. Medical Health Response to Different Disasters						

Unit IV	REHABILITATION, RECONSTRUCTION AND RECOVERY	9 Hrs
1. Reconstruction and Rehabilitation as a Means of Development.		1
2. Damage Assessment		1
3. Post Disaster effects and Remedial Measures.		1
4. Creation of Long-term Job Opportunities and Livelihood Options,		1
5. Disaster Resistant House Construction		1
6. Sanitation and Hygiene		1
7. Education and Awareness,		1
8. Dealing with Victims' Psychology,		1
9. Long-term Counter Disaster Planning & Role of Educational Institute		1
Unit V	DISASTER MANAGEMENT IN INDIA	9 Hrs
Disaster Profile of India – Major Disasters happened in India - Bhuj, Lathur earthquakes, Kerala flood (2018), flood in Kedarnath, Tsunami, Plague in Gujarat and Lessons Learnt.		2
Disaster Management Act 2005 - Institutional and Financial Mechanism, National Policy on Disaster Management, National Guidelines and Plans on Disaster Management;		2
Role of Government (local, state and national), Non-Government and Inter Governmental Agencies-Role of public and youth.		2
		1
TOTAL HOURS		45

Suggested List of Students Activity:

Students may be encouraged to take seminars about disaster management.

Textbooks

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Disaster Management and Mitigation measures	Ravikant Pagnis	course edition TechKnowledge Publications, 2023
2.	Disaster management	P Kumar	First Edition, Oak Bridge Publications, 2021
3.	Natural Hazards and Disaster Management : Vulnerability and Mitigation	R B Singh	Rawat Publications, 2006.

Web-based/Online Resources

S.No	Website/Links
1	https://www.youtube.com/watch?v=m8fcpZxrkwI&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF
2	https://www.youtube.com/watch?v=vhDztZYARSM&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF&index=2
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6313 – DISASTER MANAGEMENT AND MITIGATION

Time: 3 Hrs

Max.Marks: 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO	Questions	Unit	Blooms Level	Course Outcome	Program Outcomes
I	1. Explain in detail about natural disaster.	I	U	E6313.1	PO1, PO5, PO7
	2. Elaborate the structural failures of buildings due to manmade disaster.	I	R	E6313.1	PO1, PO5, PO7
	3. Detail out the Causes, effects of any one natural disaster.	I	R	E6313.1	PO1, PO5, PO7
	4. Differentiate any ten points on natural disaster and manmade disaster.	I	R	E6313.1	PO1, PO5, PO7
II	5. Explain in detail about risk assessment.	II	U	E6313.2	PO1, PO5, PO7
	6. What is meant by vulnerability? Explain in detail.	II	U	E6313.2	PO1, PO5, PO7
	7. Enumerate the Strategic Development for Risk Reduction.	II	U	E6313.2	PO1, PO5, PO7
	8. Explain the strategies to reduce vulnerability.	II	R	E6313.2	PO1, PO5, PO7
III	9. Explain in detail about disaster preparedness.	III	R	E6313.3	PO1, PO5, PO7
	10. Elaborate about disaster response.	III	U	E6313.3	PO1, PO5, PO7
	11. Explain about the Role of IT in Disaster Preparedness.	III	R	E6313.3	PO1, PO5, PO7
	12. Explain the response of Government, International and NGO Bodies on Disaster Management.	III	U	E6313.3	PO1, PO5, PO7
IV	13. Explain the concepts of rehabilitation.	IV	U	E6313.4	PO1, PO5, PO7
	14. Enumerate the guiding principles of reconstruction.	IV	R	E6313.4	PO1, PO5, PO7
	15. Explain about the Creation of Long-term Job Opportunities in the disaster management.	IV	U	E6313.4	PO1, PO5, PO7

	16.	Discuss about the ideas on Disaster Resistant House Construction.	IV	U	E6313.4	PO1, PO5,PO7
V	17.	Explain in detail about the Disaster profile of India.	V	R	E6313.5	PO1, PO5,PO7
	18.	Enumerate the objectives of the national policy on disaster management in India.	V	R	E6313.5	PO1, PO5,PO7
	19.	Explain about the Disaster Management Act 2005.	V	U	E6313.5	PO1, PO5,PO7
	20.	Explain the role of NGOs and INGOs in disaster management in India.	V	U	E6313.5	PO1, PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6314 – ARCHITECTURAL ACOUSTICS

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6314

Semester : VI SEMESTER

Course Title : ARCHITECTURAL ACOUSTICS

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ARCHITECTURAL ACOUSTICS	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION	9
II	ROOM ACOUSTICS	9
III	ACOUSTICAL MATERIALS	9
IV	OPEN-AIR ACOUSTICS	9
V	ENVIRONMENTAL NOISE CONTROL	9
Total		45

COURSE DESCRIPTION:

This course is introduced to impart a clear idea about architectural acoustical services to any built form. The course is broadly divided into two parts. In the beginning, along with physics of sound, the principles of room acoustics are covered. The major emphasis is given to the acoustical design of auditorium, lecture theatre and studios. In the second part Environmental acoustics and noise control is delivered. The sound transmissions in outdoor and noise reduction strategies are framed in the course.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Explain the physics of sound propagation through materials.
- Outline the measures or guideline for room acoustics.
- Adopt the acoustical guidelines for auditorium design.
- Calculate the reverberation time for an enclosed space.
- Estimate the sound transmission class of a composite wall system.
- Develop the environmental noise control design components to reduce urban traffic noise.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6314.1	Understand the architectural acoustics and its application in ancient and modern Architecture
E6314.2	Know the acoustical environment and Principle of geometrical acoustics.
E6314.3	Analyse the acoustical materials and their use, selection criteria and construction.
E6314.4	Know the Open-Air Acoustics and its elements.
E6314.5	Study the Environmental noise control

Pre-requisites

Nil

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6314.1	3	-	2	-	2	-	3	3	-	2
E6314.2	3	-	2	-	2	-	3	3	-	2
E6314.3	3	-	2	-	2	-	3	3	-	2
E6314.4	3	-	2	-	2	-	3	3	-	2
E6314.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
 2
 3
 4
- II. 5
 6
 7
 8
- III. 9
 10
 11
 12
- IV. 13
 14
 15
 16
- V. 17
 18
 19
 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6314 – ARCHITECTURAL ACOUSTICS

AAE6314		ARCHITECTURAL ACOUSTICS	L	T	P	C
THEORY			3	0	0	3
Unit I	INTRODUCTION					9 Hrs
Introduction to architectural acoustics and its application in ancient and modern architecture.						3
Sound Physics -Characteristic and measurement of sound, frequency, intensity, and decibel scale, auditory range						3
Threshold of audibility and pain, effects of sound on humans, loudness.						3
Unit II	ROOM ACOUSTICS					9 Hrs
Acoustics and acoustical environment, Behaviour of sound in an enclosed space.						2
Principle of geometrical acoustics						2
Different acoustical defects in auditorium and its solution, reverberation and reverberation time calculations						3
Sabine’s formula and its interpretation.						2
Unit III	ACOUSTICAL MATERIALS					9 Hrs
General description of acoustical materials – acoustical tiles, fibreboard, resonator absorption unit absorber, carpets, acoustical plaster, resilient packing composite materials, etc						3
Their use, selection criteria and construction.						3
Unit IV	OPEN-AIR ACOUSTICS					9 Hrs
Free field propagation of sound, absorption from air and natural elements, effect of barriers, effect of landscape element, thermal and wind gradient. Outdoor Acoustics:						3
Reduction of noise by screening, Screening by Planting.						3
Unit V	ENVIRONMENTAL NOISE CONTROL					9 Hrs
Noise sources, air borne and structure borne sound, NC curve						3
Propagation of noise of mechanical operation and impact noise						3
Sound transmission through wall and partition.						3
TOTAL HOURS						45

Suggested List of Students Activity:

The students are also expected to go through Architecture Journals like Inside – Outside, Interiors Today, Design and Interiors, Architect and builder, Builders Friend etc.

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Textbooks

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Architectural Acoustics	M David Egan	1 st Edition, Cengage Learning, 2009
2.	Auditorium Acoustics and Architectural Design	Michael Barron	2 nd Edition, Spon Press, 2024
3.	Acoustics in Architectural Design	Raf Orlowski	The Crowood Press Ltd, 2021

Web-based/Online Resources

S.No	Website/Links
1	https://www.youtube.com/watch?v=m8fcpZxrkwI&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF
2	https://www.youtube.com/watch?v=vhDztZYARSM&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF&index=2
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6314 – ARCHITECTURAL ACOUSTICS

Time: 3 Hrs

Max.Marks: 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Explain in detail about the architectural acoustics and its application in modern architecture.	I	U	E6314.1	PO1, PO5,PO7
	2.	Explain about how sound wave gets scattered and transmitted?	I	R	E6314.1	PO1, PO5,PO7
	3.	Calculate the change in sound level when the intensity of the sound is doubled.	I	R	E6314.1	PO1, PO5,PO7
	4.	Explain about the effects of sound on humans.	I	R	E6314.1	PO1, PO5,PO7
II	5.	Discuss some of the common acoustical defects found in auditorium.	II	U	E6314.2	PO1, PO5,PO7
	6.	Explain in detail about the Behavior of sound in an enclosed space.	II	U	E6314.2	PO1, PO5,PO7
	7.	Find reverberation time for a hall of dimensions 40' x 30' x 20' having average absorption coefficient of 0.15.	II	U	E6314.2	PO1, PO5,PO7
	8.	Explain about the principles of geometrical acoustics.	II	R	E6314.2	PO1, PO5,PO7
III	9.	Discuss some of the common sound absorbing acoustical materials used.	III	R	E6314.3	PO1, PO5,PO7
	10.	Explain the procedure of selection and construction of acoustical materials.	III	U	E6314.3	PO1, PO5,PO7
	11.	Explain about the sound absorbing composite material.	III	R	E6314.3	PO1, PO5,PO7
	12.	Detail out any four acoustical materials and its properties.	III	U	E6314.3	PO1, PO5,PO7
IV	13.	Explain the acoustical design considerations for open air theater.	IV	U	E6314.4	PO1, PO5,PO7
	14.	Explain about the types of Noise Barriers.	IV	R	E6314.4	PO1, PO5,PO7

	15.	Explain in detail about the effects of landscape elements in the design of open-air theater.	IV	U	E6314.4	PO1, PO5,PO7
	16.	Enumerate the concept of Outdoor Acoustics.	IV	U	E6314.4	PO1, PO5,PO7
V	17.	Explain about the harmful effects of noise on human beings.	V	R	E6314.5	PO1, PO5,PO7
	18.	How can we reduce the effect of external noise on internal spaces through architectural planning?	V	R	E6314.5	PO1, PO5,PO7
	19.	A wall transmits 1% of sound energy incident upon it. Calculate the Sound Reduction Index (SRI) of the wall.	V	U	E6314.5	PO1, PO5,PO7
	20.	Explain about the Noise sources in a residential area.	V	U	E6314.5	PO1, PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6315 – CONTEMPORARY ARCHITECTURE

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6315

Semester : VI SEMESTER

Course Title : CONTEMPORARY ARCHITECTURE

Course Type : THEORY

L	T	P	C
3	0	0	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
CONTEMPORARY ARCHITECTURE	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	19 TH CENTURY EUROPE AND AMERICA	9
II	EARLY 20 TH CENTURY ARCHITECTURE	9
III	MID 20 TH CENTURY ARCHITECTURE	9
IV	20 TH CENTURY ARCHITECTURE – INDIA PRE INDEPENDENCE	9
V	POST INDEPENDENCE	9
Total		45

COURSE DESCRIPTION:

Contemporary architecture is a form of construction that embodies the various styles of building designs stemming from a wide range of influences. Contemporary architecture cuts away from the modern architecture of the late twentieth century by including eco-friendly features and embracing all kinds of creativity. Aside from employing the different styles and influences, the contemporary architecture uses the latest technology and materials.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Study of evolution of various styles of art and architecture as a response to climate, culture and socio-political conditions by taking examples from Contemporary Architecture.
- Understand fundamental design principles (visual art principles) and resulting architectural expression; appropriate to place and people.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6315.1	Understand about 19 th century Europe and America
E6315.2	Know early 20th century architecture
E6315.3	Analyze about mid-20th century architecture
E6315.4	Outline the 20th century architecture – India pre independence
E6315.5	Analyze the post-independence contemporary architecture.

Pre-requisites

Nil

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6315.1	3	-	2	-	2	-	3	3	-	2
E6315.2	3	-	2	-	2	-	3	3	-	2
E6315.3	3	-	2	-	2	-	3	3	-	2
E6315.4	3	-	2	-	2	-	3	3	-	2
E6315.5	3	-	2	-	2	-	3	3	-	2
Total	15	-	10	-	10	-	15	15	-	10
Correlation Level	3	-	2	-	2	-	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

The subject may be taught through audiovisual aids, slides, PowerPoint presentations so as to explain salient architecture features and techniques.

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Written test (Unit 1 & 2)	Written test (Unit 3 & 4)	Quiz MCQ (Online / Offline)	Model Examination	Written Examination
Duration	2 Periods	2 Periods	1 Hour	3 Hours	3 Hours
Exam Marks	50	50	60	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	6 th Week	12 th Week	13 th -14 th Week	16 th Week	

CONTINUOUS ASSESSMENT

CA1 and CA2: Assessment written test should be conducted for 50 Marks for two units. The marks scored will be converted to 10 Marks for the internal assessment.

CA1 and CA2, Assessment test should be conducted for two units as below

- PART A: (5 X 10 Marks = 50 Marks).
- Eight questions will be asked, students should write five questions. Four questions can be asked from each unit.

CA3: 60 MCQ can be asked by covering the entire portion. It may be conducted by Online / Offline. The marks scored should be converted to 10 marks for the internal assessment.

CA4: Model examination should be conducted as per the end semester question pattern. The marks should be converted to 10 marks for the internal assessment.

Question Pattern:

- Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.
- Four questions will be asked from every unit. Students should write any two questions.

Question Pattern - Model Examination and End Semester Examination Theory Exam

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit. Each question carries 10 marks.

Sample:

- I. 1
 2
 3
 4
- II. 5
 6
 7
 8
- III. 9
 10
 11
 12
- IV. 13
 14
 15
 16
- V. 17
 18
 19
 20

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6315 – CONTEMPORARY ARCHITECTURE

AAE6315		CONTEMPORARY ARCHITECTURE	L	T	P	C
THEORY			3	0	0	3
Unit I	19 TH CENTURY EUROPE AND AMERICA					9 Hrs
Introduction to Contemporary Architecture – Industrial Revolution – Great Exhibition – birth to Modern Architecture.						3
New materials and technology. Functional Purpose of buildings like crystal palace, London by Joseph Paxton, Wain Wright building, St. Louis. Missouri by alder and Louis Sullivan.						3
Unit II						3
EARLY 20 TH CENTURY ARCHITECTURE						9 Hrs
Rejection of previous styles and introduction of contemporary building styles.						2
Fagus shoe factory by Walter Gropius, Johnson wax factory, falling water by F.L. Wright, Seagram building by Mies Van De Rohe, Ronchamp chapel and Villa Savoye by le Corbusier.						3
						3
						1
Unit III						
MID 20 TH CENTURY ARCHITECTURE						9 Hrs
New methods of construction – Shell and Folded Plate Roofs.						1
Engineering developments – Developments of Regional styles - Palazzetto del sports, Rome Olympic stadium by P. Luigi Nervi, Sydney opera house by John Utzon, St. Mary’s cathedral by Kenzo Tange, Parliamentary complex, Colombo by Geoffrey.						2
						3
						3
Unit IV						
20 TH CENTURY ARCHITECTURE – INDIA PRE INDEPENDENCE						9 Hrs
Indo Saracenic Architecture –						3
Rashtrapathi Bhavan, Delhi by Edwin Lutyens,						2
Senate house,						2
Madras University by Chislom.						2
Unit V						
POST INDEPENDENCE						9 Hrs
Chandigarh master plan, High court building by le Corbusier,						3
Works of Louis – I – Khan, Kanchenjunga apartments in Bombay by Charles Correa,						3
Works of Laurie baker, B.V.Doshi and Zaha hadid .						3
TOTAL HOURS						45

Suggested List of Students Activity:

The students are also expected to go through Architecture Journals like Inside – Outside, Interiors Today, Design and Interiors, Architect and builder, Builders Friend etc.

1. Quiz
2. Group discussion
3. Seminar
4. Assignments

Textbooks

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Elements of Modern Architecture: Understanding Contemporary Buildings	Antony Radford	Thames and Hudson,2020
2.	Sourcebook of Contemporary Architecture	Alex Sanchez Vidiella	Harper Design,2011
3.	Detail in Contemporary Timber Architecture	Virginia McLeod	Laurence King Publishing,2015

Web-based/Online Resources

S.No	Website/Links
1	https://www.youtube.com/watch?v=m8fcpZxrkwI&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF
2	https://www.youtube.com/watch?v=vhDztZYARSM&list=PLyqSpQzTE6M_5jEwMql2g6TwHXilMDDiF&index=2
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6315 – CONTEMPORARY ARCHITECTURE

Time: 3 Hrs

Max.Marks: 100

PART- A (5 X 2 X 10 Marks = 100 Marks)

Note: Answer Ten questions by selecting two questions from each unit.

Each question carries 10 marks

S.NO	Questions		Unit	Blooms Level	Course Outcome	Program Outcomes
I	1.	Explain in detail with suitable sketches – the Crystal Palace, London.	I	U	E6315.1	PO1, PO5,PO7
	2.	Explain in detail about the life history of sir Joseph Paxton.	I	R	E6315.1	PO1, PO5,PO7
	3.	Explain the salient features of Wain Wright building.	I	R	E6315.1	PO1, PO5,PO7
	4.	Enumerate the new technology in 19 th Century Europe and America.	I	R	E6315.1	PO1, PO5,PO7
II	5.	Explain about the Fagus Shoe factory with suitable sketches.	II	U	E6315.2	PO1, PO5,PO7
	6.	Explain the life history of frank Lloyd Wright.	II	U	E6315.2	PO1, PO5,PO7
	7.	Discuss the salient features of Ron champ chapel.	II	U	E6315.2	PO1, PO5,PO7
	8.	Enumerate the architectural ideologies of Mies Van De Rohe.	II	R	E6315.2	PO1, PO5,PO7
III	9.	Explain about the construction of Sydney Opera house.	III	R	E6315.3	PO1, PO5,PO7
	10.	Explain about the Parliamentary Complex, Colombo.	III	U	E6315.3	PO1, PO5,PO7
	11.	Enumerate the ideologies of Lugi Nervi with suitable example.	III	R	E6315.3	PO1, PO5,PO7
	12.	Detail out the ideas followed in Villa Savoye by Le Corbusier.	III	U	E6315.3	PO1, PO5,PO7
IV	13.	Explain about the salient features of Rashtrapathi Bhavan.	IV	U	E6315.4	PO1, PO5,PO7
	14.	Explain the works of Chislom in Madras.	IV	R	E6315.4	PO1, PO5,PO7

	15.	Explain about the salient features of Indo Saracenic architecture.	IV	U	E6315.4	PO1, PO5,PO7
	16.	Enumerate the features of Indo-Saracenic Architecture.	IV	U	E6315.4	PO1, PO5,PO7
V	17.	Explain in detail about Kanchenjunga apartment.	V	R	E6315.5	PO1, PO5,PO7
	18.	Explain about any one example of Zaha Hadid works.	V	R	E6315.5	PO1, PO5,PO7
	19.	Explain in detail about the life history of Le Corbusier.	V	U	E6315.5	PO1, PO5,PO7
	20.	Discuss the ideas and concept of Chandigarh Master Plan.	V	U	E6315.5	PO1, PO5,PO7

QUESTION PAPER SETTING:

The teaching learning process and assessment are being carried out in accordance with the revised Blooms Taxonomy. The question paper should consist of 90% questions based on Lower Order Thinking (LOTs) and the remaining 10% based on Higher Order Thinking(HOTs) as detailed below.

Revised Bloom's Taxonomy Level	Lower order thinking skills (LOTs)	Higher Order Thinking Skills (HOTs)
	R-Remember, U-Understand, AP-Apply	An- Analyse, E-Evaluate, C-Create
% to be included	90 %	10 %

AAE6420 – ARCHITECTURAL DESIGN STUDIO - III

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6420

Semester : VI SEMESTER

Course Title : ARCHITECTURAL DESIGN
STUDIO - III

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
ARCHITECTURAL DESIGN STUDIO - III	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	DESIGN PROBLEM – 1	30
II	DESIGN PROBLEM – 2	30
Total		60

COURSE DESCRIPTION

Large percentage of diploma holders in Architectural Assistantship find employment with private architects and also majority of them go for self-employment. Therefore, diploma holders are required to design small public and commercial buildings. This course aims at providing practical exercises in designing so as to develop appropriate knowledge and skills in building design. Teachers are expected to show various types of designs of small to medium public and commercial buildings to develop an appreciation of different designs.

COURSE OBJECTIVE:

The objective of this course is to enable the student

- To develop space visualization application of materials to simple architectural forms.
- To apply the knowledge gained in other subjects and basic design to design of public and commercial buildings

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6420.1	Collect the data for given design
E6420.2	Develop the literature study for given design
E6420.3	Describe the case study report
E6420.4	Develop the conceptual design scheme.
E6420.5	Develop the detailed Design and presentation drawings which include Plan, Elevation, Section and site plan etc. for given design problem.

Pre-requisites

NIL

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6420.1	2	2	3	-	3	-	3	3	-	3
E6420.2	2	2	3	-	3	-	3	3	-	3
E6420.3	2	2	3	-	3	-	3	3	-	3
E6420.4	2	2	3	-	3	-	3	3	-	3
E6420.5	2	2	3	-	3	-	3	3	-	3
Total	10	10	15	-	15	-	15	15	-	15
Correlation Level	2	2	3	-	3	-	3	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Engage and Motivate: Instructors should actively engage students to boost their learning confidence.
- Real-World Relevance: Incorporate relatable, real-life examples and engineering applications to help students understand and appreciate course concepts.

- **Interactive Learning:** Utilize demonstrations and plan interactive student activities for an engaging learning experience.
- **Application-Based Learning:** Employ a theory-demonstrate-practice-activity strategy throughout the course to ensure outcome-driven learning and employability.
- **Simulation and Real-World Practice:** Conduct demonstrations and hands-on activities in a simulated environment, transitioning to real-world scenarios when possible.
- **Encourage Critical Analysis:** Foster an environment where students can honestly assess experiment outcomes and analyse potential sources of error in case of discrepancies

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Practical Document	Model Practical Examination	Practical Examination
Portion	Design – I	Design – II	Design – I & II	Design – I & II	Design – I & II
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10Marks	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

DETAILED ALLOCATION OF MARKS:

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	Site Plan	10
B	Plan	15
C	Elevation	10
D	Section	20
TOTAL MARKS		50

CA 3: Practical document should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test and End Semester Examination with a bonafide certificate.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	Site Plan	10
B	Plan	25
C	Elevation	25
D	Section	25
E	View	05
F	Viva Voce	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE6420 – ARCHITECTURAL DESIGN STUDIO - III

AAE6420		ARCHITECTURAL DESIGN STUDIO - III	L	T	P	C
PRACTICAL			0	0	4	2
Unit I	DESIGN PROBLEM – 1					
Recreational Buildings: Museum/Exhibition Centre for Mixed group Of People. Design Problem Is to Create an Accessible Community Space That Celebrates the Character and Heritage of The Town and Community Challenges to Develop a Welcoming Environment. It Include Data Collection, Literature Study, Case Study, Conceptual Design Scheme, Detailed Design and Presentation Drawings Which Includes Plan, Elevation, Section, Perspective Views Etc.,						30
Unit II	DESIGN PROBLEM – 2					
Multi – storey building: Shopping Centre / Hotel. The Intent is to Develop Design Skills for Multi Storeyed and Other Large Scaled Public Buildings with Emphasis on Services and Structures. It Include Data Collection, Literature Study, Case Study, Conceptual Design Scheme, Detailed Design and Presentation Drawings Which Includes Plan, Elevation, Section, Perspective Views & Block model.						30
TOTAL HOURS						60

Suggested List of Students Activity:

- Presentation Of Data Collection and Literature Study
- The student should conduct a case study of the similar building
- Student should analyse the design data based on the case study
- Student Should Done Site Analysis and Feasibility Report.
- Working Drawing and Design Process Will Be Undertaken.

Equipment's Required:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Time – Saver Standards for Architectural Design	Michael Crobsie & Donald Watson	8 th Edition, McGrag Hill Education,2017
2.	Time – Saver Standards for Interior Design	Joseph Dechiara,	2 nd Edition, McGrac Hill Education,2017
3.	Architec’s Data	Ernst Neufert	5 th Edition,Wiley – Blackwell,2011

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6420 – ARCHITECTURAL DESIGN STUDIO - III

Time: 3 Hrs

Max.Marks: 100

Note: Answer any one question. (BY LOT)

Si. No	Name of the Experiments	CO	PO																		
1	Museum at Chennai: The rectangular of land which is located in Chennai amongst commercial area. • Frame the requirements according to the modern trends. • Apply the rules and regulations of local authority. Draw the following <table><tr><th>Part</th><th>Description</th><th>Marks</th></tr><tr><td>A</td><td>Site Plan - 1:400</td><td>10</td></tr><tr><td>B</td><td>Plan - 1:100</td><td>25</td></tr><tr><td>C</td><td>Elevation - 1:100</td><td>25</td></tr><tr><td>D</td><td>Section - 1:100</td><td>25</td></tr><tr><td>E</td><td>View - (not to scale)</td><td>05</td></tr></table>	Part	Description	Marks	A	Site Plan - 1:400	10	B	Plan - 1:100	25	C	Elevation - 1:100	25	D	Section - 1:100	25	E	View - (not to scale)	05	E6420.1 - 5	PO1, PO2, PO3, PO5, PO7
Part	Description	Marks																			
A	Site Plan - 1:400	10																			
B	Plan - 1:100	25																			
C	Elevation - 1:100	25																			
D	Section - 1:100	25																			
E	View - (not to scale)	05																			
2	Hotel at Trichy The rectangular of land which is located in Trichy amongst commercial area and residential area. • Frame the requirements according to the modern trends. • Apply the rules and regulations of local authority. Draw the following <table><tr><th>Part</th><th>Description</th><th>Marks</th></tr><tr><td>A</td><td>Site Plan - 1:400</td><td>10</td></tr><tr><td>B</td><td>Plan - 1:100</td><td>25</td></tr><tr><td>C</td><td>Elevation - 1:100</td><td>25</td></tr><tr><td>D</td><td>Section - 1:100</td><td>25</td></tr><tr><td>E</td><td>View - (not to scale)</td><td>05</td></tr></table>	Part	Description	Marks	A	Site Plan - 1:400	10	B	Plan - 1:100	25	C	Elevation - 1:100	25	D	Section - 1:100	25	E	View - (not to scale)	05	E6420.1 - 5	PO1, PO2, PO3, PO5, PO7
Part	Description	Marks																			
A	Site Plan - 1:400	10																			
B	Plan - 1:100	25																			
C	Elevation - 1:100	25																			
D	Section - 1:100	25																			
E	View - (not to scale)	05																			
3	Viva-voce - 10 marks																				

AAE6520 – COMPUTER STUDIO-III

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6520

Semester : VI SEMESTER

Course Title : COMPUTER STUDIO-III

Course Type : PRACTICAL

L	T	P	C
0	0	4	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
COMPUTER STUDIO-III	4	60	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	BASIC TOOLS AND INTERFACE	12
II	PRODUCE MODELS	13
III	FURNITURE AND BUILDINGS	13
IV	RENDERING MODELS	12
V	V-RAY RENDERING MODELS	10
Total		60

COURSE DESCRIPTION

In the present times an Architectural Assistant should be capable of drafting drawings on the computer as most of the Architects lay greater stress on computerized drawings for their ease of drafting, editing, managing and presentation. At the end of the course the students should be able to make 3-D architectural drawings for presentation and construction purposes. The student should get familiar with the latest CAD software.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understanding of Revit Architecture / Google Sketch Up and introduce to

modelling terminology and concepts.

- Learn how to begin a new project in Revit Architecture /Google Sketch Up and introduce tools and concepts necessary to design and draw.
- Grasp and appreciation for viewing and presenting models in 3D to clients and design team members.
- Gain knowledge of the benefits and uses of 3D modeling and how they are applicable to design business.
- Rendering for the given design.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6520.1	Understanding basic tools and interface.
E6520.2	Produce models.
E6520.3	Apply furniture in design.
E6520.4	Apply rendering techniques in models.
E6520.5	Apply v-ray rendering in models and to develop mini project with report.

Pre-requisites NIL

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6520.1	2	-	2	2	-	-	3	2	-	3
E6520.2	2	-	2	2	-	-	3	2	-	3
E6520.3	2	-	2	2	-	-	3	2	-	3
E6520.4	2	-	2	2	-	-	3	2	-	3
E6520.5	2	-	2	2	-	-	3	2	-	3
Total	10	-	15	10	-	-	15	10	-	15
Correlation Level	2	-	3	2	-	-	3	2	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Assessment Methodology:

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Practical Document	Practical Test	Practical Examination
Portion	Ex. 1 to 6	Ex. 7 to 13	All Exercises	All Exercises	All Exercises
Duration	2 Periods	2 Periods	Regularly	3 Hours	3 Hours
Exam Marks	50	50	Each Practical 10 Marks	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

DETAILED ALLOCATION OF MARKS: CA1, CA2

CA1 and CA2: All the exercises/experiments as per the portions mentioned above should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded will be converted to 10 Marks for each assessment test.

Part	Description	Marks
A	3D Model	20
B	Material application	15
C	Render	10
D	Dimensioning	05
TOTAL MARKS		50

CA 3: Practical document should be maintained for every exercise / experiment immediately after completion of the practice. The same should be evaluated for 10 Marks. The total marks awarded should be converted to 10 Marks for the internal assessment. The practical document should be submitted for the Practical Test and End Semester Examination with a bonafide certificate.

CA 4: All the exercises/experiments should be completed and kept for the Model practical examination. The model practical examination should be conducted as per the scheme of evaluation as below. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical and End Semester Examination- Practical Exam

Part	Description	Marks
A	3D Model	30
B	Material application	20
C	Render	25
D	Dimensioning	15
E	Viva Voce	10
TOTAL MARKS		100

Note: Practical Document with Bonafide certificate must be submitted to Model Practical Examination and End Semester Practical Examination

AAE6520 – COMPUTER STUDIO-III

AAE6520		COMPUTER STUDIO-III	L	T	P	C
PRACTICAL			0	0	4	2
Unit I	BASIC TOOLS AND INTERFACE					
Selecting a Template in Revit Architecture / Sketch Up. Exploring the Revit Architecture / Sketch up Interface. Title Bar, Menu Bar, Getting Started Toolbar. Drawing Area. Status Bar. Window Resizes Handle- Learning How to Use Revit Architecture / Sketch Up Tools. Viewing the Revit Architecture / Sketch up Quick Reference Card						12
Unit II	PRODUCE MODELS					
1. Creating your first 3D model in sketch up. Saving and reopening a model. Backing up a sketch up file or restoring an auto- save file. 2. Drawing lines, shapes, and 3D object. Introducing drawing basics and concepts. Drawing basics shapers. Selecting geometry. Pushing and pulling shapes into 3D. Drawing arcs. Drawing free hand shapes. Dividing, splitting, and exploding lines and faces. Offsetting a line from existing geometry. Measuring angles and distances to model precisely. Modeling complex 3D shapes with the solid tools. Adding text, labels, and dimensions to a model. 3. Viewing a model- Choosing a style- Applying colors, photos, materials, and textures. Graded exercises: Basics shapes, freehand shapes, 3D shapes with the solid tools..						13
Unit III	FURNITURE AND BUILDINGS					
1. Basic furniture. A) Rectangular table. B) Three-Seater Sofa. C) Dining table with chairs. D) Cabinet with doors and drawers. 2. Importing and exporting models from CAD.						13
Unit IV	RENDERING MODELS					
1. Toolbars & interface 2. Materials editor, transparent materials to glass. 3. Modify & objects 4. Practice of rendering by experimenting and exploring.						15

Unit V	V-RAY RENDERING MODELS
1. Rendering Objects 2. Environment 3. Lighting 4. Output	10
TOTAL HOURS	60

S.NO	LIST OF EXERCISES
1	Study of various menus of Revit Architecture/ sketch-up package.
2	Setting units & selection of toolbars.
3	Create a five different geometrical 3D forms & apply with different colors, materials & textures.
4 A)	Create a three-seater sofa & apply material with proper dimension.
4 B)	Create a rectangular table & apply material with proper dimension.
5	Create a dining table with chairs & apply material with proper dimension.
6	Create a cot with side table & apply material with proper dimension.
7	Create a wardrobe & apply material with proper dimension.
8	Create a false ceiling design for a size of 14'x10' bedroom (minimum 2 options) & apply material with proper dimension.
9	Create kitchen cabinets & apply material with proper dimension.
10	Import a file from CAD and create a 3D exterior model apply suitable material and render it.
11	Create a master bedroom interior with all details, apply suitable material and render it.
12	Render the bedroom interior by using V-ray settings.
13	Render the Living interior by using V-ray settings.
14 A)	Render the kitchen by using V-ray setting as day time render.
14 B)	Render the kitchen by using V-ray setting as night time render.

Suggested List of Students Activity:

- Each student should submit activity related to the 3d modeling with basic detailing.

Equipment's Required:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Computer, table & chair	Each 1 per student
2.	Reference manuals	1 per student

SOFTWARE USED:

REVIT ARCHITECTURE / GOOGLE SKETCHUP

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Mastering Autodesk Revit Architecture	James Vandezande & Eddy Krygiel	Wiley,2013
2.	Revit Architecture Training guide	Linkan Sagar & Srishty Rawal	First Edition,BPB Publications,2018
3.	Sketchup & Layout for Architecture	Nick Sonder Matt Donley	Ingram short title,2016

Web-based/Online Resources

S.No	Website/Links
1	https://www.autodesk.com/in/products/revit/architecture

MODEL QUESTION PAPER**AAE6520 – COMPUTER STUDIO-III****Time: 3 Hrs****Max.Marks: 100**

Si. No	Name of the Experiments	CO	PO															
1	Design and draw the kitchen & apply material with proper dimension &render the final view. Draw the following <table><tr><th>Part</th><th>Description</th><th>Marks</th></tr><tr><td>A</td><td>3D Model</td><td>30</td></tr><tr><td>B</td><td>Material application</td><td>20</td></tr><tr><td>C</td><td>Render</td><td>25</td></tr><tr><td>D</td><td>Dimensioning</td><td>15</td></tr></table>	Part	Description	Marks	A	3D Model	30	B	Material application	20	C	Render	25	D	Dimensioning	15	E6520.5	PO1, PO3, PO4, PO7
Part	Description	Marks																
A	3D Model	30																
B	Material application	20																
C	Render	25																
D	Dimensioning	15																
2	Viva-voce - 10 marks																	

ELECTIVE - IV

AAE6641 – INTERIOR DESIGN AND DETAILING

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6641

Semester : VI SEMESTER

Course Title : INTERIOR DESIGN AND DETAILING

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
INTERIOR DESIGN AND DETAILING	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION TO THE SUBJECT	20
II	PREPARATION OF AN ALBUM WITH PRESENTATION DRAWINGS OF THE ROOMS IN A RESIDENTIAL HOUSE.	25
III	PREPARATION OF AN ALBUM WITH PRESENTATION DRAWINGS OF THE ROOMS IN AN APARTMENT	30
Total		75

COURSE DESCRIPTION

In the present times an Architectural Assistant should be capable of drafting drawings on the computer as most of the Architects lay greater stress on computerized drawings for their ease of drafting, editing, managing and presentation. At the end of the course the students should be able to make 2-D architectural drawings for presentation and construction purposes. The student should get familiar with the latest CAD software.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- Understand the concept and principles of interior design.
- Apply the methods and techniques of interior designing.
- Learn the innovative trends and materials for interior design.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6641.1	Explain the interior design.
E6641.2	Describe the application of colors for interior design.
E6641.3	Prepare an album with presentation drawings of the rooms in a residential house.
E6641.4	Develop rendering for the residential plans
E6641.5	Acquire the knowledge of finishing materials in interiors

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6641.1	2	-	2	2	3	-	2	3	-	3
E6641.2	2	-	2	2	3	-	2	3	-	3
E6641.3	2	-	2	2	3	-	2	3	-	3
E6641.4	2	-	2	2	3	-	2	3	-	3
E6641.5	2	-	2	2	3	-	2	3	-	3
Total	10	-	10	10	15	-	10	15	-	15
Correlation Level	2	-	2	2	3	-	2	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching the detailing of interiors.
- Each exercise of detailing shall be made clear to students before starting drafting.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 7	Ex. 7 to 13	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3	30
C	Viva voce	10
TOTAL		100

AAE6641– INTERIOR DESIGN AND DETAILING

AAE6641		INTERIOR DESIGN AND DETAILING	L	T	P	C
PRACTICUM			1	0	4	3
Unit I	INTRODUCTION TO THE SUBJECT					20 Hrs
Learning to assess interior space and its organization- The role of functionally in interior design-Layout schemes of living, bed room, study room, toilets and residential house-Application of color in various elements in interior designing						2 2
Exercise 1. Design and draw a furniture layout for a living room space of an area of 250sq.ft. with scale (1:25).						4
Exercise 2. Design and draw a kitchen space for an area of 220 sq.ft with store area, utility space and breakfast counter with scale of (1:25).						4
Exercise 3. Design and draw a furniture layout a master bedroom space of an area of 200sq.ft. with Scale (1:25).						4
Exercise 4. Design and draw a toilet space of an area of 45sq.ft with scale (1:20).						4
Unit II	PREPARATION OF AN ALBUM WITH PRESENTATION DRAWINGS OF THE ROOMS IN A RESIDENTIAL HOUSE					25 Hrs
Plan of each room of a residential house designed in the earlier terms showing the furniture, fixture etc laid out in a functional and aesthetic manner-Elevation of each wall of the above designed rooms-Rendering the above in color.						1 2 2
Exercise . 5. Draw the elevation and detailing of living room with scale of (1:25).						5
Exercise . 6. Draw the elevation and detailing of kitchen with scale of (1:25).						5
Exercise . 7. Draw the elevation and detailing of master bedroom with scale of (1:25).						5
Exercise 8. Draw the elevation and detailing of toilet with scale of (1:20).						5
Unit III	PREPARATION OF AN ALBUM WITH PRESENTATION DRAWINGS OF THE ROOMS IN AN APARTMENT					30 Hrs
Preparation of one point perspective drawing and rendering with color of the aforementioned rooms - study finishing materials used in floors, walls, doors windows and furniture - study fittings and fixtures used in the bathrooms and kitchens of a residential house.						1 2 2
Exercise 9 . One point perspective view for bed room with color scheme.						5
Exercise 10 . One point perspective view for kitchen with color scheme.						5
Exercise 11. One point perspective view for living with color scheme.						5
Exercise 12. One point perspective view for toilet with color scheme.						5
Exercise 13. One point perspective view for Dining with color scheme.						5
TOTAL HOURS						75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	The Interior Design Reference & Specification	Chris Grimley & Mimi Love	Rockport Publishers,2018
2.	Construction and Detailing for Interior Design	Drew Plunkett	Laurence King Publishing,2010
3.	Construction Detailing for Interior Design	PJ Do Val	Fairchild Books, 2019

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT

MODEL QUESTION PAPER

AAE6641 – INTERIOR DESIGN AND DETAILING

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Design and draw a furniture layout a master bedroom space of an area of 200sq.ft. with Scale (1:25)	E6641.1	PO1, PO3, PO4, PO5, PO7
PART-B (50 Marks)			
2	Draw the one point perspective view for living room with color scheme.	E6641.5	PO1, PO3, PO4, PO5, PO7
3	Viva-voce - 10 marks		

AAE6642 – LANDSCAPE DESIGN AND DETAILING

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6642

Semester : VI SEMESTER

Course Title : LANDSCAPE DESIGN AND DETAILING

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
LANDSCAPE DESIGN AND DETAILING	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION	21
II	WORKING DRAWING	25
III	DETAIL DRAWINGS	29
Total		75

COURSE DESCRIPTION

Architectural building locates in specific locations require that these relate with the surroundings consequently it is imperative that the setting of the building be dealt if great detail. This course would help the students in creating suitable surrounding in different contexts. This course would deal into study of landscape feature relate to the built-up mass.

COURSE OBJECTIVE:

At the completion of the study, the students will be able

- To describe introduction to landscape architecture.
- To understand site survey and analysis.
- To gain knowledge of soft landscape.
- To understand hard landscape.
- To understand indoor landscape

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6642.1	Express introduction to landscape architecture
E6642.2	Apply site survey and analysis.
E6642.3	Apply the softscape and hard scape in landscape design.
E6642.4	Produce the Working Drawing.
E6642.5	Develop the Detail drawings of soil medium, planter sections etc.,

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6642.1	2	-	2	2	3	-	2	3	-	3
E6642.2	2	-	2	2	3	-	2	3	-	3
E6642.3	2	-	2	2	3	-	2	3	-	3
E6642.4	2	-	2	2	3	-	2	3	-	3
E6642.5	2	-	2	2	3	-	2	3	-	3
Total	10	-	10	10	15	-	10	15	-	15
Correlation Level	2	-	2	2	3	-	2	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching the detailing of interiors.
- Each exercise of detailing shall be made clear to students before starting drafting.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 6	Ex. 7 to 11	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually. The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3	30
C	Viva voce	10
TOTAL		100

AAE6642 – LANDSCAPE DESIGN AND DETAILING

AAE6642		LANDSCAPE DESIGN AND DETAILING	L	T	P	C
PRACTICUM			1	0	4	3
Unit I	INTRODUCTION					21 Hrs
Graphical understanding of drawing lines, plants, trees, shrubs, hedges, rocks, human, plant groups, water feature, pergolas& other elements of landscape in plan, section and elevations.						21
Unit II	WORKING DRAWING					25 Hrs
Evolving Schematic drawings, working drawing, planting plan and details for residential landscape design.						25
Unit III	DETAIL DRAWINGS					29 Hrs
To understand sectional details such as soil medium, planter sections, water features, road ways, pathways, mound, boulders, boulevards, furniture, terrace garden, waterproofing detail in the terrace garden, courtyard details, indoor planters, electrical layout, plumbing layout, pavilions are to be studied and drawings to be prepared.						29
TOTAL HOURS						75

Suggested list of exercises:

S.NO	LIST OF EXERCISES
1	Graphical representation of lines, rocks, grass, shrubs, hedges.
2	Graphical representation of trees, plants, plant groups, humans.
3	Graphical representation of water features, pergolas.
4	Working drawing of residential landscape – plan & Sectional elevations.
5	Planting plan of residential landscape.
6	Detailed drawings of soil medium, planter sections, mounds.
7	Detailed drawings of roadways, pathways, drainage details.
8	Details of terrace garden roof.
9	Electrical layout in residential landscape design.
10	Design of boulevards.
11	Design a pavilion in outdoor space.

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Landscape Architecture	Ian Thompson	Oxford University Press, 2014
2.	Landscape Graphics: Plan, Section, and Perspective Drawing of Landscape Spaces	G Reid	1 st Edition, Watson – Guptill Publications Inc., 2002
3.	Time - Saver Standards for Landscape Architecture, McGraw Hill Education	Charles Harris & Nicholas Dines	2 nd Edition, 2005

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT

MODEL QUESTION PAPER

AAE6642 – LANDSCAPE DESIGN AND DETAILING

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Planting plan of residential landscape with proper dimension & render the final view	E6642.1	PO1, PO3, PO4, PO5, PO7
PART-B (50 Marks)			
2	Design a pavilion in outdoor space with proper dimension & render the final view.	E6642.5	PO1, PO3, PO4, PO5, PO7
3	Viva-voce - 10 marks		

AAE6643 - STRUCTURAL DETAILING AND DRAWING

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6643

Semester : VI SEMESTER

Course Title : STRUCTURAL DETAILING
AND DRAWING

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
STRUCTURAL DETAILING AND DRAWING	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	SLABS	18
II	BEAMS	30
III	COLUMN AND FOOTING	14
IV	STEEL MEMBERS	13
Total		75

COURSE DESCRIPTION

This is a detailing subject which covers broad elements of Structural Engineering. Study of this subject enables the student to know the position and placement of reinforcement for the RCC structural elements; connection of Steel structural elements.

COURSE OBJECTIVE:

At the completion of the study, the students will be able to

- To know the disposition of reinforcement in R.C.C Structural elements.
- To know the connection details of the Steel members.
- To work out the Bar bending Schedule for R.C.C members

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6643.1	Detailing of One-way slab and Two-way slab
E6643.2	Detailing of Beams
E6643.3	Detailing of Columns and Foundations Building
E6643.4	Detailing of steel structures
E6643.5	Acquire the knowledge in bar bending schedule

Pre-requisites

NIL

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6643.1	2	2	3	-	3	-	3	3	2	-
E6643.2	2	2	3	-	3	-	3	3	2	-
E6643.3	2	2	3	-	3	-	3	3	2	-
E6643.4	2	2	3	-	3	-	3	3	2	-
E6643.5	2	2	3	-	3	-	3	3	2	-
Total	10	10	15	-	15	-	15	15	10	-
Correlation Level	2	2	3	-	3	-	3	3	2	-

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching the detailing of R.C.C structures.
- Each exercise of detailing shall be made clear to students before starting drafting.

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Ex. 1 to 8	Ex. 9 to 13	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

CA1 and CA2: All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	30
C	Viva voce	10
TOTAL		100

AAE6643 – STRUCTURAL DETAILING AND DRAWING

AAE6643		STRUCTURAL DETAILING AND DRAWING	L	T	P	C
PRACTICUM			1	0	4	3
Unit I	SLABS					18 Hrs
1. One way slab 2. Two-way slab 3. Bar bending schedule						3
Exercise 1. Detailing of a simply supported one way Slab. Exercise 2. Detailing of a Two-way Slab with corners held down. Exercise 3. Detailing of a Two-way Slab with corners not held down.						15
Unit II	BEAMS					30 Hrs
1. Singly reinforced Beam 2. Doubly reinforced Beam 3. Lintel cum sunshade joints in concrete work. Bar bending schedule						5
Exercise 4. Detailing of a Singly Reinforced Rectangular Beam. (Cantilever) Exercise 5. Detailing of a Singly Reinforced Rectangular Beam. (Partially fixed) Exercise 6. Detailing of a Singly Reinforced Rectangular Beam. (Fixed) Exercise 7. Detailing of a Doubly Reinforced Rectangular Beam. (Partially fixed) Exercise 8. Detailing of Lintel Beam with Sunshade.						25
Unit III	COLUMN AND FOOTING					14 Hrs
1. R.C.C square column footing 2. R.C.C rectangular column footing 3. Bar bending schedule						4
Exercise 9. Detailing of a Square sloped Footing with Column. Exercise 10. Detailing of a Rectangular Footing with Column.						10
Unit IV	STEEL MEMBERS					13 Hrs
1. Beam to Beam connection 2. Beam to Column connection (Framed and Seated connections) 3. Roof Truss Steel sections & welded connections						3

Exercise 11. Detailing of Beam-to-Beam connection	10
Exercise 12. Detailing of Beam to Column connection (Framed and Seated connections)	
Exercise 13. Detailing of Roof Truss	
TOTAL HOURS	75

Suggested List of Students Activity:

- Students may conduct a site visit for any ongoing construction work.

Equipment's Required:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	Each 1 per student
2.	Stool	1 No

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Structural Design & Drawing	Krishna Raju	3rd Edition
2.	Structural Design and Drawing Vol. II: Concrete Structures	Krishnamurthy D	CBS PUBLISHERS AND DISTRIBUTORS PVT LTD (1 January 2006)
3.	Structural Design and Drawing III	Wagh Sajjan , Chaudhari V.A , Rathod Ramesh	Tech-Neo Publications LLP PUNE (1 January 2020)

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6643 – STRUCTURAL DETAILING AND DRAWING

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Experiments	CO	PO																		
PART- A (60 Marks)																					
1	The following are the details of a singly reinforced partially fixed beam <table><tr><td>Clear span</td><td>6000mm</td></tr><tr><td>Width of supports</td><td>300mm</td></tr><tr><td>Size of beam</td><td>300 x 600 mm</td></tr><tr><td>Clear cover to reinforcement</td><td>25 mm</td></tr><tr><td>Reinforcement Details</td><td></td></tr><tr><td>Tension reinforcement</td><td>5 Nos. of 20mm dia Fe 415 steel</td></tr><tr><td>Hanger bars</td><td>2 nos. 10 mm dia Fe 415steel</td></tr><tr><td>Stirrups</td><td>8 mm dia2 legged Fe 415 steel @ 340mm c/c</td></tr><tr><td>Negative reinforcement</td><td>2 nos. of 20mm dia at support to a distance of 0.10 l (or) Ld whichever is greater.</td></tr></table> Use standard anchorage and curtailment practices wherever necessary. Assume any other data required. Draw to a suitable scale: 1. The longitudinal section of the beam (20 marks) 2. The cross section of the beam at support (10 marks) 3. The cross section of the beam at mid span (10 marks) 4. The plan of bottom reinforcement. (10 marks) 5. The plan of top reinforcement. (10 marks)	Clear span	6000mm	Width of supports	300mm	Size of beam	300 x 600 mm	Clear cover to reinforcement	25 mm	Reinforcement Details		Tension reinforcement	5 Nos. of 20mm dia Fe 415 steel	Hanger bars	2 nos. 10 mm dia Fe 415steel	Stirrups	8 mm dia2 legged Fe 415 steel @ 340mm c/c	Negative reinforcement	2 nos. of 20mm dia at support to a distance of 0.10 l (or) Ld whichever is greater.	E6644.2	PO1, PO3, PO5, PO7
Clear span	6000mm																				
Width of supports	300mm																				
Size of beam	300 x 600 mm																				
Clear cover to reinforcement	25 mm																				
Reinforcement Details																					
Tension reinforcement	5 Nos. of 20mm dia Fe 415 steel																				
Hanger bars	2 nos. 10 mm dia Fe 415steel																				
Stirrups	8 mm dia2 legged Fe 415 steel @ 340mm c/c																				
Negative reinforcement	2 nos. of 20mm dia at support to a distance of 0.10 l (or) Ld whichever is greater.																				

PART-B (30 Marks)			
2	The following are the details of beam-to-beam connections. Size of main beam : ISMB 400 @ 616 N/m Size of cross beam : ISMB 300 @ 442 N/m Size of cleat Angles : 2 Nos. of ISA 90x90x8mm Assume any other data required suitably. Draw to a suitable scale the following: Beam to beam connection – Top of main and cross beam at different level. 1) Elevation with main beam in section (15 marks) 2) Elevation with cross beam in section (15 marks)	E6644.4	PO1, PO3, PO5, PO7
3	Viva-voce - 10 marks		

AAE6644 – CONTEMPORARY BUILDING MATERIALS

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)
 Course Code : AAE6644
 Semester : VI SEMESTER
 Course Title : CONTEMPORARY BUILDING MATERIALS
 Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
CONTEMPORARY BUILDING MATERIALS	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION	10
II	ADVANCED CONCRETE AND COMPOSITE REINFORCEMENT	15
III	COMPOSITE MATERIALS	15
IV	NANO-MATERIALS AND NANO-COMPOSITES	15
V	DIGITAL AND TENSILE MATERIALS	20
Total		75

COURSE DESCRIPTION

This course examines the understanding of characteristics and performance of the newer materials in terms of detailing and application to the context. Exposure to the need and use of various contemporary materials in creating innovation and ultra-performance in building design.

COURSE OBJECTIVE:

The objective of the course is to

- To introduce current materials and products in architecture that are eco-friendly, composite, durable, advanced, smart.
- To inform about innovations in materials and practices in building industry.
- To focus on materials and systems, their properties and connections, intrinsic relationship with structural systems and environmental performance.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6644.1	Know about the need for ultra-performance materials in building design.
E6644.2	Analyse the Types of advanced concrete and its applications
E6644.3	Analyse the Composite Materials
E6644.4	understand the manufacture and types of nano materials
E6644.5	Analyse the Digital and Tensile Materials.

Pre-requisites

Basics of building materials

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6644.1	2	2	3	-	3	-	3	3	-	3
E6644.2	2	2	3	-	3	-	3	3	-	3
E6644.3	2	2	3	-	3	-	3	3	-	3
E6644.4	2	2	3	-	3	-	3	3	-	3
E6644.5	2	2	3	-	3	-	3	3	-	3
Total	10	10	15	-	15	-	15	15	-	15
Correlation Level	2	2	3	-	3	-	3	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of dimension, detailing, scale and its application in green building design.

Each exercise of detailing shall be made clear to students before starting drafting

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Unit I ,II,III	Unit IV,V	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the

course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	30
C	Viva voce	10
TOTAL		100

AAE6644 – CONTEMPORARY BUILDING MATERIALS

AAE6644		CONTEMPORARY BUILDING MATERIALS		L	T	P	C
PRACTICUM				1	0	4	3
Unit I	INTRODUCTION						
Introduction and need for ultra-performance materials in building design as a substitute to conventional materials. Newer application for special performance, thermal/ sound/ moisture protection, fitting, equipment and furnishing. Properties of contemporary materials – multidimensional, repurposed, recombinant, intelligent, interfacial, transformant, etc. (Minimum 2 exercise by covering all the components)							10
Unit II	ADVANCED CONCRETE AND COMPOSITE REINFORCEMENT						
Types of advanced concrete and its applications. Workability and mechanical properties, durability and reliability of advanced concrete materials. Manufacturing and application in buildings. Bendable concrete, light transmitting concrete, translucent concrete, pervious concrete, eco-cement, etc., Introduction to manufacture, types, properties and performance of new reinforcement materials in concrete - Aramid fibres, bio-steel, carbon (Graphite) Fibres and fibre glass etc. (Minimum 2 exercise by covering all the components)							15
Unit III	COMPOSITE MATERIALS						
Types, terminology and classification of composite materials based on particle reinforced, fiber reinforced, structural and composite benefit in building construction. Composite materials manufacturing process. Use of composite materials namely Polymer Matrix Composites (PMCs) and Fibre- Reinforced Polymers (FRPs) along with cement, steel, aluminium, wood, glass, etc., for thermal insulation, fire protection, coating, painting and structural monitoring, etc. (Minimum 2 exercise by covering all the components)							15
Unit IV	NANO-MATERIALS AND NANO-COMPOSITES						
Definition, manufacture and types of nano materials. Properties, performance of nano materials in building construction, types and application of nano-materials like carbon, nanotubes etc., Nano composite used with cement, steel, aluminium, wood, glass for thermal insulation, fire protection, coating and painting and structural monitoring etc. Nano technologies in building and construction. (Minimum 2 exercise by covering all the components)							15

Unit V	DIGITAL AND TENSILE MATERIALS	
Types of materials and its constitution, manufacturing and construction technology requirement for 3Dprinted building's structure and Extraterrestrial printed structures. Tensile fabric structure by digital printing. Translucent fabric, thin-film photovoltaics, texlon foil, PVC (poly vinyl chloride) coated polyester cloth and PTFE (poly tetra fluoro ethylene) (teflon) coated glass cloth. (Minimum 2 exercise by covering all the components)		20
TOTAL HOURS		75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Building Materials	S K Duggal	5 th edition, New Age Publishers,2019
2.	Building Materials	N Subramanian	Oxford University, 2019
3.	Building Materials	Ravi Kumar Sharma	Dreamtech Press,2020

Web-based/Online Resources

S.No	Website/Links
1	https://ndl.iitkgp.ac.in/
2	https://nptel.ac.in/
3	https://www.youtube.com/watch?v=wOyQBVfM1eo&list=PLyqSpQzTE6M_RfjEQMK7_L-UvxAMhplUT

MODEL QUESTION PAPER

AAE6644 – CONTEMPORARY BUILDING MATERIALS

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Draft the types of materials and construction technology requirement for 3Dprinted building's structure.	E6644.5	PO1, PO2, PO3, PO5, PO7
PART-B (50 Marks)			
2	Analyze about the manufacture, types, properties and performance of new reinforcement materials in concrete.	E6644.2	PO1, PO2, PO3, PO5, PO7
3	Viva-voce - 10 marks		

AAE6645 – GREEN BUILDINGS

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)

Course Code : AAE6645

Semester : VI SEMESTER

Course Title : GREEN BUILDINGS

Course Type : PRACTICUM

L	T	P	C
1	0	4	3

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
GREEN BUILDINGS	5	75	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION TO GREEN BUILDING	10
II	SITE AND WATER EFFICIENCY	15
III	ENERGY EFFICIENCY	15
IV	MATERIAL AND CONSTRUCTION TECHNIQUES	15
V	INDOOR ENVIRONMENTAL QUALITY & GREEN BUILDING RATING SYSTEM	20
Total		75

COURSE DESCRIPTION

This course examines the Low-cost building which enhances the Concept of Green building and sustainable development; Issues and strategies of green building and sustainable development.

COURSE OBJECTIVE:

The objective of the course is

- To develop awareness and familiarity with green design and its integration with architectural Design.
- To understand the influence of climate on architecture.
- To understand locally available materials.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6645.1	Know about the objectives of green building.
E6645.2	Analyse site and water efficiency.
E6645.3	Analyse energy efficiency
E6645.4	Review construction techniques and identify suitable materials
E6645.5	Evaluate indoor air quality and discuss green building rating system.

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6645.1	2	2	3	-	3	-	3	3	-	3
E6645.2	2	2	3	-	3	-	3	3	-	3
E6645.3	2	2	3	-	3	-	3	3	-	3
E6645.4	2	2	3	-	3	-	3	3	-	3
E6645.5	2	2	3	-	3	-	3	3	-	3
Total	10	10	15	-	15	-	15	15	-	15
Correlation Level	2	2	3	-	3	-	3	3	-	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Instructional Strategy:

- Each exercise shall be aimed at teaching principles of dimension, detailing, scale and its application in green building design.
Each exercise of detailing shall be made clear to students before starting drafting

Assessment Methodology

	Continuous Assessment (40 marks)				End Semester Examination (60 marks)
	CA1	CA2	CA3	CA4	
Mode	Practical Test	Practical Test	Written Test Theory	Practical Test	Practical Examination
Portion	Unit I,II,III	Unit IV & V	All Units	All Exercises	All Exercises
Duration	2 Periods	2 Periods	3 hours	3 hours	3 hours
Exam Marks	60	60	100	100	100
Converted to	10	10	10	10	60
Marks	40				60
Tentative Schedule	7 th Week	14 th Week	15 th Week	16 th Week	

Note:

- **CA1 and CA2:** All the exercises/experiments should be completed as per the portions above and kept for the practical test. The practical test should be conducted as per the scheme of evaluation as below. The marks awarded shall be converted to 10 Marks for each assessment test.

Practical documents should be maintained for every exercise / experiment immediately after completion of the practice. The practical document should be submitted for the practical test. The same should be evaluated for 10 Marks for each exercise/experiment. The total marks awarded should be converted to 10 Marks for the practical test as per the scheme of evaluation as below.

The details of the documents to be prepared as per the instruction below.

Each exercise should be completed on the day of practice. The same shall be evaluated for 10 marks on the day or next day of practice before commencement of the next exercise.

This documentation can be carried out in a separate notebook or printed manual or a file with documents. Students should write the procedure and draw the sketch manually.

The detailed date of the practices and its evaluations should be maintained in the course logbook. The log book and the practical documents should be submitted for the verification by the Flying Squad.

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
A	PART A	25
B	PART B	25
Total		50
D	Practical Documents (As per the portions)	10
TOTAL		60

CA 3: Written Test for complete theory portions should be conducted for 100 Marks as per the question pattern below. The marks scored will be converted to 10 Marks for internal assessment.

Question pattern – Written Test Theory

Description		Marks	
Part – A	30 MCQ from the complete theory portions.	30 X 1 Mark	30 Marks
Part – B	Seven Questions to be answered out of 10 Questions.	7 X 10 Marks	70 Marks
TOTAL			100 Marks

CA 4: All the exercises/experiments should be completed and kept for the practical test. The practical test should be conducted as per the scheme of evaluation below. After completion of all the exercises the practical test should be conducted as per End Semester Examination question pattern scheme of evaluation. The marks awarded should be converted to 10 Marks for the internal assessment.

SCHEME OF EVALUATION

Model Practical Examination and End Semester Examination - Practical Exam

PART	DESCRIPTION	MARKS
A	PART A - Any One of Exercise (By Lot) From Unit -1 & 2	60
B	PART B - Any One of Exercise (By Lot) From Unit -3 & 4	30
C	Viva voce	10
TOTAL		100

AAE6645 – GREEN BUILDINGS

AAE6645	GREEN BUILDINGS	L	T	P	C
PRACTICUM		1	0	4	3
Unit I	INTRODUCTION TO GREEN BUILDING	10 Hrs			
Introduction to Green Buildings, Definition of Green building, aim and purpose Environmental impact of buildings. Brief history of green building List Main five strategies to achieve green efficiency.(Minimum 2 exercise by covering all the components)					10
Unit II	SITE AND WATER EFFICIENCY	15 Hrs			
Site Specific Design: Site Development Guidelines- purpose of tree and vegetative cover, green roofs, installing cool-mainly reflective-roofs, cool pavements. Water Efficiency: Recycling and reuse of grey water guidelines and rain water harvesting purpose and methods. (Minimum 2 exercise by covering all the components)					15
Unit III	ENERGY EFFICIENCY	15 Hrs			
Guidelines for energy efficiency of built environment with respect to HVAC. Renewable energy generation -Solar panels, Solar water heating and passive design principles. (Minimum 2 exercise by covering all the components)					15
Unit IV	MATERIAL AND CONSTRUCTION TECHNIQUES	15 Hrs			
Green building materials- properties and uses of CSEB (Compressed Stabilised Earth Blocks), AAC Blocks (Autoclaved Aerated Concrete blocks), Fly ash, Bamboo, certified wood. Recyclable materials -properties and uses of recycled metal, demolition waste etc use of salvaged materials from flooring, columns, beams, timber, glass, Alternative construction techniques for green efficiency like filler slabs, rat trap bond, ferro-cement components. Post construction Maintenance strategies. (Minimum 2 exercise by covering all the components)					15
Unit V	INDOOR ENVIRONMENTAL QUALITY & GREEN BUILDING RATING SYSTEM	20 Hrs			
Indoor Environmental Quality: Design and constructional guide lines for Maintaining indoor air quality. Introduction to building rating systems: points system, weightage, agencies and institutions- TERI GRIHA rating, IGBC, in the contexts of Indian sub-continent. Analysis and study of green buildings in India-First green building in India- CII Sohrabji Godrej Green Business Centre, Hyderabad, ITC Green centre Gurgaon, Nisha's play school, Goa. (Minimum 2 exercise by covering all the components)					20
TOTAL HOURS					75

EQUIPMENTS REQUIRED:

S.No	LIST OF EQUIPMENTS	QUANTITY REQUIRED
1.	Drafting table	1 per student
2.	Stool	1 per student

Text Books

S.NO	TITLE	AUTHOR	PUBLISHER WITH EDITION
1.	Green Building Fundamentals	G Harihara Iyer	Notion Press, 2022
2.	Introduction to Green Buildings & Built Environment	IGBC	B S Publications, 2022
3.	Green Building: Principles & Practices	Harshul Savla	Notion Press, 2021

Web-based/Online Resources

S.No	Website/Links
1	https://youtu.be/oRt0zRuFKC4?list=PLLy_2iUCG87CfjAcR9lGNrJ16Fe6OqXzr
2	https://youtu.be/nFBvLlFFqI
3	https://ndl.iitkgp.ac.in/
4	https://nptel.ac.in/

MODEL QUESTION PAPER

AAE6645 – GREEN BUILDINGS

Time: 3 Hrs

Max.Marks: 100

Note: Answer All Question.

Si. No	Name of the Exercise	CO	PO
PART- A (40 Marks)			
1	Analyze the Guidelines for energy efficiency of built environment with respect to HVAC.	E6645.3	PO1, PO2, PO3, PO5, PO7
PART-B (50 Marks)			
2	Design the constructional guide lines for Maintaining indoor air quality with sketches.	E6645.5	PO1, PO2, PO3, PO5, PO7
3	Viva-voce - 10 marks		

AAE6740 - INNOVATION & STARTUP

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)
 Course Code : AAE6740
 Semester : VI SEMESTER
 Course Title : INNOVATION & STARTUP
 Course Type : PRACTICUM

L	T	P	C
1	0	2	2

TEACHING AND SCHEME OF EXAMINATION

No. of weeks per semester: 15 weeks

Course	Instructions		Examination			
	Hours / Week	Hours / Semester	Marks			Duration
			Internal Assessment	Autonomous Examination	Total	
INNOVATION & STARTUP	3	45	40	100*	100	3 Hrs

*Examinations will be conducted for 100 marks and will be converted to 60 marks

TOPICS AND ALLOCATION OF HOURS

Unit	Topics	Time (Hrs)
I	INTRODUCTION TO INNOVATION	6
II	INCUBATION CLUBS, IPR, PATENTS AND COPYRIGHTS	6
III	GOVERNMENT AND NON-GOVERNMENT FUNDING SCHEMES FOR START-UPS	6
IV	BUSSINESS IDEAS AND STRATEGIES	9
V	EXPOSURE TO INDUSTRY	18
Total		45

COURSE DESCRIPTION

The integration of Innovation and Start-ups concept within the syllabus is testament to the forward thinking nature of educational institutions. By introducing this concept, students are provided with a solid foundation upon which they can build their skills in Innovation and Start-ups. This course can bridge the gap between theory and practice. It allows students to apply the knowledge they have acquired in a real world context, thereby enhancing their understanding and retention of the above concept. This experimental learning approach not only fosters a deeper level of engagement but also trains student with practical skills necessary to navigate the complexities of the business world. This also empowers students to become an Innovator or Entrepreneur. With necessary tools and knowledge, educational institutions are preparing the next generation of entrepreneurs to tackle the challenges and opportunities that lie ahead. This syllabus will explore the different facets of innovation, including its importance, types and strategies for fostering a culture of innovation within organizations

COURSE OBJECTIVE:

The objective of this course is to enable the students

- To understand the concept of Innovation and Start-ups.
- To acquire knowledge of Prototype development, IPR, Patents and Copyrights.

- To have practical experience in preparing Business plan for Start-ups.
- To visit the existing nearby industry to prepare a project report about the present challenges of that industry.
- To know the different funding supports available from Government and Non-Government schemes for Start-ups.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E6740.1	Differentiate between Innovation and Start-ups
E6740.2	Explain the importance of IPR, Patents and Copyrights.
E6740.3	Describe the methodology to be adopted for preparing the Business Plan
E6740.4	Gain practical experience by Industrial training and visiting the nearby industry
E6740.5	Explore and identify various funding facilities available from Government and Non-Government Schemes for Start-ups

Pre-requisites

There are no specific prerequisites for this course, although a basic understanding of business and technology concepts would be beneficial.

CO-POs & PSOs Mapping matrix

CO/PO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E6740.1	-	-	1	-	2	3	3	3	-	2
E6740.2	-	-	1	-	2	3	3	3	-	2
E6740.3	-	-	1	-	2	3	3	3	-	2
E6740.4	-	-	1	-	2	3	3	3	-	2
E6740.5	-	-	1	-	2	3	3	3	-	2
Total	-	-	5	-	10	15	15	15	-	10
Correlation Level	-	-	1	-	2	3	3	3	-	2

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Assessment Methodology

	Continuous Assessment (40 marks)			End Semester Examination (60 marks)
	CA1	CA2	CA3	
Mode	Class Assessment (Unit I,II & Unit III)	Seminar Presentations (Unit IV)	Submission of Industry Visit Project Report (Unit V)	Practical Examination (Project)
Duration	2 hours	---	---	3 hours
Exam Marks	50	20	30	100
Converted to	10	10	20	60
Marks	10	10	20	60

Continuous Assessment - 40 marks	
Description	Marks
Class Assessment (50 marks) - Unit – I,II & III Written Examination - Theory Questions 10 questions out of 15 questions (10 x 3 marks :30 marks) 4 questions out of 6 questions (4 x 5 marks : 20 marks)	10 marks
Seminar Presentations (20 marks- each topic carries 10 marks) - Unit IV Students should present any two topics with PPTs	10 marks
Submission of Industry Visit Project Report - (30 marks) – Unit V	20 marks
Total	40 marks

SCHEME OF EVALUATION

PART	DESCRIPTION	MARKS
CA1	Class Assessment (50 marks) - Unit – I,II & III Written Examination - Theory Questions 10 questions out of 15 questions (10 x 3 marks :30 marks) 4 questions out of 6 questions (4 x 5 marks : 20 marks)	10
CA2	Seminar Presentations (20 marks- each topic carries 10 marks) - Unit IV Students should present any two topics with PPTs	10
CA3	Submission of Industry Visit Project Report - (30 marks) - Unit V	20
Total		40

AAE6740 – INNOVATION & STARTUP

AAE6740		INNOVATION & STARTUP		L	T	P	C
PRACTICUM				1	0	2	2
UNIT I	INTRODUCTION TO INNOVATION						6 Hrs
An Introduction to Innovation and Creativity							1
Innovation in current Environment							1
Types of Innovation							1
Challenges of Innovation							1
Steps of Innovation Management - Divergent v/s Convergent thinking - Design thinking and Entrepreneurship.							1
							1
UNIT II	INCUBATION CLUBS, IPR, PATENTS AND COPYRIGHTS						6 Hrs
Idea Generation - Incubation Clubs - Prototype Development							1
Marketing of Innovation							1
Management of Innovation							1
Creation of IPR -Types of IPR –							1
Patents and Copyrights Patents in India –							1
Technological and Non-Technological Innovation Process.							1
UNIT III	GOVERNMENT AND NON-GOVERNMENT FUNDING SCHEMES FOR START-UPS						6 Hrs
An introduction to Start-up - Start-ups in India							1
Procedure for registration of Start-ups -							1
Business Model- Business Plan - Case Studies							1
Opportunities and Challenges –							1
Funding supports from Government Schemes -MUDRA, TANSEED, NEEDS, PMEGP, UYEGP – Non-Government Schemes - CSR Fund - Angel Investors - Venture Capitalist.							1
							1
UNIT IV	BUSSINESS IDEAS AND STRATEGIES						9 Hrs
How to start a start-up in India. All the students have to select a minimum of 2 topics from the list given below. They are expected to collect the resources with the help of faculty assigned to them to prepare PPTs for presentation							9
1. Idea Generation.							
2. Innovation Management.							
3. Product Development.							
4. Business Model Innovation.							
5. Organizational Culture and Change Management.							
6. Leadership and Innovation.							
7. Barriers to Innovation.							
8. Innovation Marketing.							
9. E-Commerce							
10. success stories (any one).							
11. Role of Start-ups in Higher Education.							
12. Professional Networking in Building Brands.							
13. How to start a start-up in India.							

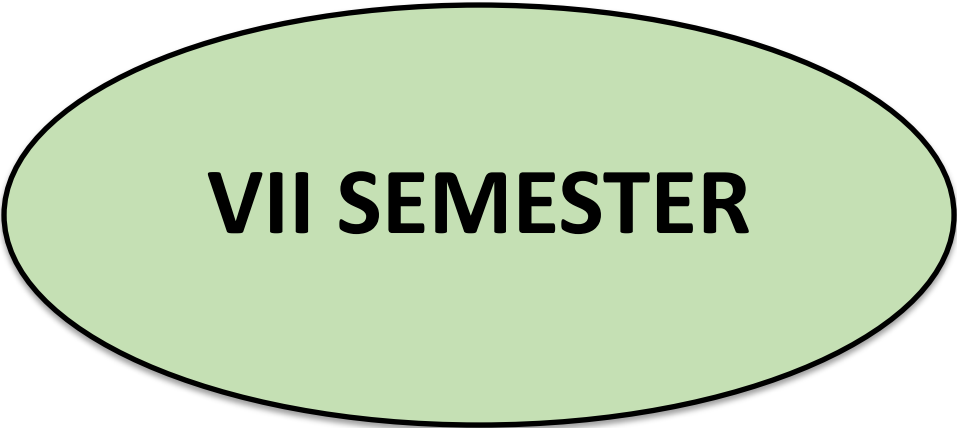
UNIT V	EXPOSURE TO INDUSTRY	18 Hrs
All the students should visit and study the nearby industries, incubation centres, start-ups etc., and select any one to prepare a project report which covers the Name of the Industry/Organization, Introduction of the Industry, Type of the Industry, Scope of the Industry, Plant Layout and Location, Details of Plant and Machineries, Process flow chart, Manufacturing Methods, Process of Manufacturing, Product Manufacturing, Quality Control, Marketing, Product selling - Conclusion.		18
TOTAL HOURS		45

End Semester Examination - Project Exam

Students should be assessed for 100 Marks both by the internal examiner and external examiner appointed by the Chairperson, Autonomous Examinations.

Detailed Allocation of Marks

S. No	Description	Marks
Part A	Written Examination – Unit –I, II & III	45
	Theory Questions	
i)	10 questions out of 15 questions (10 x 3 marks = 30 marks)	
ii)	3 questions either or pattern (3 x 5 marks = 15 marks)	
Part B i)	Presentation of Industry Visit Project Report	25
ii)	Interaction and Evaluation	30
TOTAL		100



VII SEMESTER

AAE7152 – MINI PROJECT (SANDWICH COURSE ONLY)

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)
Course Code : AAE7152
Semester : VII SEMESTER
Course Title : MINI PROJECT (SANDWICH COURSE ONLY)
Course Type : PRACTICAL

COURSE DESCRIPTION

Every student must do one mini project in the sandwich diploma program. Students can do their project in Industry or R&D Lab or in-house or a combination of any two for the partial fulfillment for the award of Diploma in Engineering.

For the project works, the Department will constitute a three-member faculty committee to monitor the progress of the project and conduct reviews regularly.

If the projects are done in-house, the students must obtain the bonafide certificate for project work from the Project supervisor and Head of the Department, at the end of the semester. Students who have not obtained the bonafide certificate are not permitted to appear for the Project Viva Voce examination.

For the projects carried out in Industry, the students must submit a separate certificate from Industry apart from the regular bonafide certificate mentioned above. For Industry related projects there must be one internal faculty advisor / Supervisor from Industry (External), this is in addition to the regular faculty supervision.

The final examination for project work will be evaluated based on the final report submitted by the project group **of not exceeding four students**, and the viva voce by an external examiner.

COURSE OBJECTIVE:

Academic project work plays a crucial role in the education of Diploma in Engineering students, as it helps them apply theoretical knowledge to practical situations and prepares them for real-world engineering challenges.

- **Integration of Knowledge:** Consolidate and integrate theoretical knowledge acquired in coursework to solve practical engineering problems.
- **Skill Development:** Enhance technical skills related to the specific field of engineering through hands-on experience and application.
- **Problem-Solving Abilities:** Develop critical thinking and problem-solving abilities by addressing complex engineering issues within a defined scope.
- **Project Management:** Gain experience in project planning, execution, and management, including setting objectives, timelines, and resource allocation.

- **Teamwork and Collaboration:** Foster teamwork and collaboration by working in multidisciplinary teams to achieve project goals and objectives.
- **Research Skills:** Acquire research skills by conducting literature reviews, gathering relevant data, and applying research methodologies to investigate engineering problems.
- **Innovation and Creativity:** Encourage innovation and creativity in proposing and developing engineering solutions that may be novel or improve upon existing methods.
- **Communication Skills:** Improve communication skills, both oral and written, by presenting project findings, writing technical reports, and effectively conveying ideas to stakeholders.
- **Ethical Considerations:** Consider ethical implications related to engineering practices, including safety, environmental impact, and societal concerns.
- **Professional Development:** Prepare for future professional roles by demonstrating professionalism, initiative, and responsibility throughout the project lifecycle.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E7152.1	Demonstrate the ability to apply theoretical concepts and principles learned in coursework to solve practical engineering problems encountered during the project.
E7152.2	Develop and enhance technical skills specific to the field of engineering relevant to the project, such as design, analysis, simulation, construction, testing, and implementation.
E7152.3	Apply critical thinking and problem-solving skills to identify, analyze, and propose solutions to engineering challenges encountered throughout the project lifecycle.
E7152.4	Acquire project management skills by effectively planning, organizing, and executing project tasks within defined timelines and resource constraints.
E7152.5	Improve communication skills through the preparation and delivery of project reports, presentations, and documentation that effectively convey technical information to stakeholders.

Important points to consider to select the mini project.

- Selecting a project work in Diploma Engineering is a significant decision that can greatly influence your learning experience and future career prospects.
- Choose a project that aligns with your career aspirations and interests within the field of engineering. Consider how the project can contribute to your professional development and future opportunities.
- Ensure the project aligns with your coursework and specialization within the Diploma

program. It should complement and build upon the knowledge and skills you have acquired in your studies.

- Evaluate the scope of the project to ensure it is manageable within the given timeframe, resources, and constraints. Avoid projects that are overly ambitious or impractical to complete effectively.
- Assess the availability of resources needed to conduct the project, such as equipment, materials, laboratory facilities, and access to relevant software or tools. Lack of resources can hinder project progress.
- Select a project that genuinely interests and motivates you. A project that captures your curiosity and passion will keep you engaged and committed throughout the project duration.
- Consider the availability and expertise of faculty advisors or industry mentors who can provide guidance and support throughout the project. Effective mentorship is crucial for success.
- Clearly define the learning objectives and expected outcomes of the project. Ensure that the project will help you achieve specific learning goals related to technical skills, problem-solving, and professional development.
- Look for opportunities to propose innovative solutions or explore new methodologies within your project. Projects that encourage creativity can set you apart and enhance your learning experience.
- Consider ethical implications related to the project, such as safety protocols, environmental impact, and compliance with ethical guidelines in research and engineering practices.
- Evaluate whether the project offers opportunities for collaboration with peers, experts from other disciplines, or industry partners. Interdisciplinary projects can broaden your perspective and enhance your teamwork skills.
- Consider the potential impact of your project on society or the engineering community. Projects that address significant challenges or contribute to social good can be highly fulfilling and make a meaningful difference.

By carefully considering these points, Diploma Engineering students can make informed decisions when selecting project work that not only enhances their academic learning but also prepares them for successful careers in engineering.

Duties Responsibilities of the internal faculty advisor.

Each group should have an internal faculty advisor assigned by the HOD/Principal.

- The project should be approved by the project monitoring committee constituted by the Chairperson of Autonomous Examinations.
- The project should be selected in the sixth semester itself. Each project shall have a

maximum of four students in the project group.

- Provide comprehensive academic advising to help in the selection of appropriate project that align with their interests and career goals.
- Offer expertise and feedback to ensure rigorous methodology, innovative approaches, and meaningful contributions to the field.
- Assist in developing technical and professional skills through hands-on projects, laboratory work, and practical applications of theoretical knowledge.
- Provide personal mentorship, fostering a supportive relationship that encourages growth, resilience, and a positive academic experience.
- Facilitate connections between students and industry professionals, alumni, and other relevant networks to enhance their professional opportunities and industry exposure.
- Ensure students have access to necessary resources, including research materials, lab equipment, software, and academic literature.
- Regularly monitor and evaluate the progress of the project, providing constructive feedback and guidance to help them stay on track and achieve their goals.
- Instill and uphold high ethical and professional standards, encouraging students to practice integrity and responsibility in their work.
- Assist in preparing progress reports, writing recommendation letters, and facilitating grant applications.
- Organize and participate in workshops, seminars, and other educational events that enhance the learning experience and professional development .
- Address any issues or conflicts that arise, providing mediation and support to ensure a positive and productive academic environment.

Instructions to the students.

- Regularly meet with your internal faculty advisor for guidance on academic progress, research projects, and career planning. Be proactive in seeking advice and support from your faculty advisor.
- Use planners, calendars, and task management tools to keep track of assignments, project deadlines, and study schedules. Prioritize tasks to manage your time efficiently.
- Take advantage of opportunities to participate in projects and hands-on activities. These experiences are crucial for applying your theoretical knowledge and gaining practical skills.
- Focus on improving essential professional skills such as communication, teamwork, problem-solving, and leadership. Participate in workshops and seminars that enhance these competencies.
- Actively seek networking opportunities through industry events, seminars, and meetings. Establish connections with peers, alumni, and professionals in your field to build a strong

professional network.

- Seek internships, co-op programs, or part-time jobs related to your field of study. Real-world experience is invaluable for understanding industry practices and enhancing your employability.
- Uphold high ethical standards in all your academic and professional activities. Practice integrity, honesty, and responsibility. Adhere to the ethical guidelines and standards set by your institution and the engineering profession.
- Adopt a mindset of lifelong learning. Stay updated with the latest developments and trends in engineering by reading industry journals, attending conferences, and taking additional courses.

Documents to be submitted by the student for a project.

Submit a printed report of your project work along with the fabrication model / analysis report for the End Semester Examination.

Rubrics for Mini Project Work

Sl. No.	Topics	Description
1	Objectives	Clearly defined and specific objectives outlined. Objectives align with the project's scope and purpose.
2	Literature Review	Thorough review of relevant literature. Identification of gaps and justification for the project's contribution.
3	Research Design and Methodology	Clear explanation of the research design. Appropriateness and justification of chosen research methods.
4	Project Management	Adherence to project timeline and milestones. Effective organization and planning evident in the project execution.
5	Documentation	Comprehensive documentation of project details. Clarity and completeness in recording methods, results, and challenges.
6	Presentation Skills	Clear and articulate communication of project findings. Effective use of visuals, if applicable.

7	Analysis and Interpretation	In-depth analysis of data. Clear interpretation of results in the context of research questions.
8	Problem-Solving	Demonstrated ability to identify and address challenges encountered during the project. Innovative solutions considered where applicable.
9	Professionalism and Compliance	Adherence to ethical standards in research. Compliance with project guidelines and requirements.
10	Quality of Work	Overall quality and contribution of the project to the field. Demonstrated effort to produce high-quality work.

SCHEME OF EVALUATION

The mark allocation for Internal and End Semester Viva Voce are as below.

Internal Mark Split (40 Marks) *		
Review 1 (10 Marks)	Review 2 (15 Marks)	Review 3 (15 marks)
Committee: 5 Marks. Supervisor: 5 Marks	Committee: 7.5 Marks Supervisor: 7.5 Marks	Committee: 7.5 Marks Supervisor: 7.5 Marks

Note: * The rubrics should be followed for the evaluation of the internal marks during reviews

END SEMESTER EXAMINATION - Project Exam

The performance of each student in the project group would be evaluated in a viva voce examination conducted by a committee consisting of an external examiner and the Department project supervisor and an internal examiner.

End Semester (100) [#]			
Record (20 Marks)	Presentation (20 Marks)	Viva Voce (20 Marks)	Model / Analysis Report (40 Marks)
External: 10 Internal: 5 Supervisor: 5	External: 10 Internal: 5 Supervisor: 5	External: 10 Internal: 5 Supervisor: 5	External: 20 Internal: 10 Supervisor: 10

[#] The marks scored will be converted to 60 Marks.

AAE7273 – INDUSTRIAL TRAINING (SW)

Programme Name : ARCHITECTURAL ASSISTANTSHIP (SW)
Course Code : AAE7273
Semester : VII SEMESTER
Course Title : INDUSTRIAL TRAINING (SW)
Course Type : PRACTICAL

COURSE DESCRIPTION

The main objective of the sandwich Diploma course is to mould a well-rounded technician acclimated with the industrial environment while being a student in the institution. The Sandwich Diploma Course study is pursued by students, in 7 Semesters of 3 ½ years duration, the subjects of 3 years-Full Time Diploma Course being regrouped for academic convenience.

While in the 4th semester students undergo Industrial Training for 6 months (December through May). They also do course work in the institution for one day in a week, While in the 7th semester they undergo another spell of 6 months (June through November) Industrial training. The Apprenticeship (Amendment) Act 1973 is followed in regulating the Industrial training procedure for Sandwich Course.

COURSE OBJECTIVE:

The main objective of industrial training for a diploma engineer is to provide practical, hands-on experience in real-world industrial settings, bridging the gap between academic learning and professional practice. This training aims to equip students with the skills, knowledge, and competencies required to effectively perform and succeed in the mechanical engineering industry.

Key aspects of this objective include:

- Enable students to apply the concepts and principles learned in the classroom to real-world engineering problems and scenarios.
- Develop essential technical skills.
- Enhance soft skills like communication, teamwork, problem-solving, and time management.
- Provide exposure to industrial machinery, tools, and equipment, along with the operational procedures and safety practices in a manufacturing or engineering environment.
- Offer insights into the daily operations and responsibilities of technicians, preparing students for the transition from academic settings to professional work environments.
- Educate students on industry standards, quality control measures, and best practices in mechanical engineering and manufacturing processes.
- Help students explore various career paths within mechanical engineering, enabling them to make informed decisions about their future professional goals.
- Provide opportunities for networking with industry professionals and potential

employers.

- Encourage creative thinking and innovation by challenging students to solve real-world engineering problems and improve existing processes or products.
- Instill a sense of professionalism, work ethics, and responsibility required in the engineering field.

COURSE OUTCOMES:

After successful completion of this course, the students should be able to	
E7273.1	Demonstrate proficiency in using industrial machinery, tools, and software.
E7273.2	Able to identify, analyze, and solve engineering problems using industry-standard methods and practices.
E7273.3	Gain a comprehensive understanding of industrial manufacturing processes, quality control, and safety practices.
E7273.4	Exhibit improved communication, teamwork, and professional behavior in an industrial setting.
E7273.5	Apply theoretical concepts learned in their coursework to practical engineering tasks and projects

Pre-requisites

Nil

CO-POs & PSOs Mapping matrix

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PSO1	PSO2	PSO3
E7273.1	3	3	3	3	3	3	3	3	3	3
E7273.2	3	3	3	3	3	3	3	3	3	3
E7273.3	3	3	3	3	3	3	3	3	3	3
E7273.4	3	3	3	3	3	3	3	3	3	3
E7273.5	3	3	3	3	3	3	3	3	3	3
Total	15	15	15	15	15	15	15	15	15	15
Correlation level	5	5	5	5	3	5	3	3	3	3

Correlation level 1 – Slight (low)

Correlation level 2 – Moderate (Medium)

Correlation level 3 – Substantial (high)

Duties Responsibilities of the Faculty Mentor.

Faculty mentors play a crucial role in overseeing and guiding students during their industrial training program in Diploma engineering.

Pre-Training Responsibilities:

1. Orientation and Preparation:
 - Conduct orientation sessions to familiarize students with the objectives, expectations, and guidelines of the industrial training program.
 - Assist students in understanding the importance of industrial training in their academic and professional development.
2. Placement Coordination:
 - Collaborate with the placement cell or industry liaison office to secure suitable training placements for students that align with their academic specialization and career interests.
 - Facilitate communication between the institution and host organizations to ensure smooth coordination of training arrangements.
3. Training Plan Development:
 - Help students develop a detailed training plan outlining learning objectives, tasks, and expected outcomes for the training period.
 - Guide students in setting SMART (Specific, Measurable, Achievable, Relevant, Time-bound) goals for their training experience.

During Training Responsibilities:

4. Monitoring and Support:
 - Regularly monitor the progress of students during their industrial training. Maintain communication with both students and industry supervisors to track performance and address any issues that may arise.
 - Provide ongoing support and guidance to students, offering advice on technical challenges, professional conduct, and workplace etiquette.
5. Technical Guidance:
 - Offer technical guidance and mentorship related to the specific engineering discipline or specialization of the students. Help them apply theoretical knowledge to practical situations encountered in the industry.
6. Problem-Solving Assistance:
 - Assist students in overcoming obstacles or challenges encountered during their training. Encourage them to develop problem-solving skills and resilience in real-world engineering scenarios.
7. Feedback and Evaluation:
 - Provide constructive feedback on students' performance based on reports, assessments, and observations gathered from industry supervisors.
 - Evaluate students' achievements in relation to their training objectives and competencies developed during the program.

Post-Training Responsibilities:

1. Reflection and Debriefing:
 - Conduct debriefing sessions with students to reflect on their training experiences, discuss lessons learned, and identify areas for further improvement.
 - Help students articulate their learning outcomes and how these experiences contribute to their professional growth.
2. Documentation and Reporting:
 - Ensure comprehensive documentation of students' training activities, achievements, and feedback received from industry supervisors.
 - Prepare reports summarizing students' performance and submit these to relevant departments or committees for review and assessment.
3. Career Counseling:
 - Provide career guidance and counseling to students based on their industrial training experiences. Assist them in leveraging these experiences for future job applications or further academic pursuits.
4. Continuous Improvement:
 - Collaborate with industry partners to continuously improve the quality and relevance of the industrial training program.
 - Incorporate feedback from students and industry supervisors to enhance the effectiveness of future training placements.

By fulfilling these duties and responsibilities, faculty mentors contribute significantly to the overall educational experience and professional development of Diploma engineering students during their industrial training program.

Instructions to the students

Here are some instructions for Diploma engineering students undergoing industrial training during their academic duration:

Before Starting Industrial Training:

1. Orientation and Preparation:
 - Attend orientation sessions conducted by the institution or faculty mentors to understand the objectives, expectations, and guidelines of the industrial training program.
 - Familiarize yourself with the specific policies, procedures, and safety regulations of the host organization where you will be undergoing training.
2. Setting Goals:
 - Set clear and specific goals for your industrial training period. Define what skills, knowledge, and experiences you aim to gain during this time.
 - Discuss your goals with your faculty mentor and seek their guidance in developing a training plan that aligns with your career aspirations.
3. Professional Attire and Conduct:

- Dress appropriately and professionally according to the standards of the industry and host organization.
- Maintain a positive attitude, demonstrate punctuality, and adhere to workplace etiquette and norms.

During Industrial Training:

4. Learning and Engagement:
 - Actively engage in all assigned tasks and projects. Seek opportunities to learn new skills and technologies relevant to your field of study.
 - Take initiative in asking questions, seeking clarification, and participating in discussions with supervisors and colleagues.
5. Adaptability and Flexibility:
 - Adapt to the work environment and demonstrate flexibility in handling various responsibilities and challenges that arise during your training.
 - Be open to different roles and tasks assigned to you, as this will broaden your experience and skill set.
6. Professionalism and Communication:
 - Communicate effectively with supervisors, colleagues, and clients as required. Practice clear and concise verbal and written communication.
 - Demonstrate professionalism in all interactions, respecting confidentiality, and adhering to company policies and procedures.
7. Safety and Compliance:
 - Prioritize safety at all times. Familiarize yourself with safety protocols, procedures, and emergency exits in the workplace.
 - Follow all safety guidelines and regulations to ensure your well-being and that of others around you.

After Completing Industrial Training:

8. Reflection and Documentation:
 - Reflect on your training experience. Evaluate what you have learned, the challenges you faced, and how you have grown professionally.
 - Maintain a journal or log documenting your daily activities, achievements, and lessons learned during the training period.
9. Feedback and Evaluation:
 - Seek feedback from your industry supervisor and faculty mentor on your performance and areas for improvement.
 - Use constructive feedback to enhance your skills and competencies for future career opportunities.
10. Career Planning:
 - Use your industrial training experience to inform your career planning and decision-making process.

- Discuss your career goals and aspirations with your faculty mentor or career counselor for guidance on next steps after completing your diploma.

By following these instructions, Diploma engineering students can make the most of their industrial training experience, gain valuable insights into their chosen field, and prepare themselves effectively for future professional endeavors.

Attendance Certification

Every month students have to get their attendance certified by the industrial supervisor in the prescribed form supplied to them. Students have also to put their signature on the form and submit it to the institution supervisor. Regularity in attendance and submission of report will be duly considered while awarding the Internal Assessment mark.

Training Reports

The students have to prepare two types of reports: Weekly reports in the form of a diary to be submitted to the concerned faculty mentor of the institution. This will be reviewed while awarding Internal assessment. The details of the activity during the training will be monitored by the Faculty mentor through the faculty advisor and student.

The feedback shall be given to the HOD / Principal for further necessary action

Industrial Training Diary

Students are required to maintain the record of day-to-day work done. Such a record is called Industrial training Diary. Students have to write this report regularly. All days for the week should be accounted for clearly giving attendance particulars (Presence, absence, Leave, Holidays etc.). The concern of the Industrial supervisor is to periodically check these progress reports.

Comprehensive Training Report

In addition to the diary, students are required to submit a comprehensive report on training with details of the organisation where the training was undergone after attestation by the supervisors. The comprehensive report should incorporate study of plant / product / process / construction along with intensive in-depth study on any one of the topics such as processes, methods, tooling, construction and equipment, highlighting aspects of quality, productivity and system. The comprehensive report should be completed in the last week of Industrial training. Any data, drawings etc. should be incorporated with the consent of the Organisation.

Scheme of Evaluation

Internal Assessment

Students should be assessed for 40 Marks by industry supervisor and polytechnic faculty mentor during 3rd Month and 5th Month. The total marks (40 + 40) scored shall be converted to 40 marks for the Internal Assessment.

Sl. No.	Description	Marks
A	Punctuality and regularity. (Attendance)	10
B	Level / proficiency of practical skills acquired. Initiative in learning / working at site	10
C	Self- expression / communication skills. Interpersonal skills / Human Relation.	10
D	Report and Presentation.	10
Total		40

End Semester Examination - Project Exam

Students should be assessed for 100 Marks both by the internal examiner and external examiner appointed by the Chairperson of Autonomous Examinations after the completion of internship period of six months. The marks scored will be converted to 60 marks for the End Semester Examination.

Sl. No.	Description	Marks
A	Daily Activity Report.	20
B	Comprehensive report on Internship, Relevant Internship Certificate from the concerned department.	30
C	Presentation by the student at the end of the Internship.	30
D	Viva Voce	20
Total		100