



INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

CIVIL ENGINEERING

COURSE DESCRIPTOR

Course Title	CIVIL ENGINEERING DRAWING LABORATORY				
Course Code	ACEB04				
Programme	B.Tech				
Semester	III	CIVIL			
Course Type	Core				
Regulation	IARE - R18				
Course Structure	Theory			Practical	
	Lectures	Tutorials	Credits	Laboratory	Credits
	-	-	-	3	2
Chief Coordinator	Mr. Y Nagarjuna , Assistant Professor				
Course Faculty	Mr. Y Nagarjuna, Assistant Professor Mr. A Jagadish Babu, Assistant Professor				

I. COURSE OVERVIEW:

This course will provide hands on Computer-Aided Drafting (CAD) to create Residential Floor Plans, Residential Elevations, Sections and components of building. It will explain in detail what is required on a Residential Set of drawings for permitting purposes and will introduce students to basic Sustainability concepts and procedures

II. COURSE PRE-REQUISITES:

Level	Course Code	Semester	Prerequisites
UG	AMEB02	I	Engineering Graphics and Design Laboratory

III. MARKS DISTRIBUTION:

Subject	SEE Examination	CIA Examination	Total Marks
Civil Engineering Drawing Laboratory	70 Marks	30 Marks	100

IV. DELIVERY / INSTRUCTIONAL METHODOLOGIES:

✗	Chalk & Talk	✗	Quiz	✗	Assignments	✗	MOOCs
✓	LCD / PPT	✓	Seminars	✗	Mini Project	✓	Videos
✗	Open Ended Experiments						

V. EVALUATION METHODOLOGY:

Each laboratory will be evaluated for a total of 100 marks consisting of 30 marks for internal assessment and 70 marks for semester end lab examination. Out of 30 marks of internal assessment, continuous lab assessment will be done for 20 marks for the day to day performance and 10 marks for the final internal lab assessment.

Semester End Examination (SEE): The semester end lab examination for 70 marks shall be conducted by two examiners, one of them being Internal Examiner and the other being External Examiner, both nominated by the Principal from the panel of experts recommended by Chairman, BOS.

The emphasis on the experiments is broadly based on the following criteria:

20 %	To test the preparedness for the experiment.
20 %	To test the performance in the laboratory.
20 %	To test the calculations and graphs related to the concern experiment.
20 %	To test the results and the error analysis of the experiment.
20 %	To test the subject knowledge through viva – voce.

Continuous Internal Assessment (CIA):

CIA is conducted for a total of 30 marks (Table 1), with 20 marks for continuous lab assessment during day to day performance, 10 marks for final internal lab assessment.

Table 1: Assessment pattern for CIA

Component	Laboratory		Total Marks
	Day to day performance	Final internal lab assessment	
CIA Marks	20	10	30

Continuous Internal Examination (CIE):

One CIE exams shall be conducted at the end of the 16th week of the semester. The CIE exam is conducted for 10 marks of 3 hours duration.

Preparation	Performance	Calculations and Graph	Results and Error Analysis	Viva	Total
2	2	2	2	2	10

VI. HOW PROGRAM OUTCOMES ARE ASSESSED:

Program Outcomes (POs)		Strength	Proficiency assessed by
PO 1	Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	3	Open Ended Experiments
PO 3	Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.	2	Open Ended Experiments
PO 5	Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.	2	Presentation on real-world problems
PO10	Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.	2	Seminars / Term Paper / 5 minutes Video

3 = High; 2 = Medium; 1 = Low

VII. HOW PROGRAM SPECIFIC OUTCOMES ARE ASSESSED:

Program Specific Outcomes (PSOs)		Strength	Proficiency assessed by
PSO 1	Engineering Knowledge: Graduates shall demonstrate sound knowledge in analysis, design, laboratory investigations and construction aspects of civil engineering infrastructure, along with good foundation in mathematics, basic sciences and technical communication.	3	Presentation on real-world problems
PSO 2	Broadness and Diversity: Graduates will have a broad understanding of economical, environmental, societal, health and safety factors involved in infrastructural development, and shall demonstrate ability to function within multidisciplinary teams with competence in modern tool usage.	2	Projects
PSO 3	Self-Learning and Service: Graduates will be motivated for continuous self-learning in engineering practice and/ or pursue research in advanced areas of civil engineering in order to offer engineering services to the society, ethically and responsibly.	-	-

3 = High; 2 = Medium; 1 = Low

VIII. COURSE OBJECTIVES (COs):

The course should enable the students to:	
I	Develop Parametric design and the conventions of formal engineering drawing
II	Produce and interpret 2D & 3D drawings
III	Communicate a design idea/concept graphically/ visually
IV	Examine a design critically and with understanding of CAD - The student learn to interpret drawings, and to produce designs using a combination of 2D and 3D software.
V	Get a Detailed study of an engineering artifact.

IX. COURSE LEARNING OUTCOMES (CLOs):

CLO Code	CLO's	At the end of the course, the student will have the ability to:	PO's Mapped	Strength of Mapping
ACEB04.01	CLO 1	Draw the load bearing walls including details of the doors and windows.	PO 1	2
ACEB04.02	CLO 2	Draw the two storied building including all MEP, Joinery and rebar details.	PO 1 PO 3	2
ACEB04.03	CLO 3	Draw the detailed floor plans and elevations.	PO 5	3
ACEB04.04	CLO 4	Understand the sectional views of a building for RCC framed buildings.	PO 5	3
ACEB04.05	CLO 5	Draw the reinforcement details of typical Beams.	PO 1	3
ACEB04.06	CLO 6	Draw the reinforcement details of typical Columns.	PO 3	3
ACEB04.07	CLO 7	Draw the reinforcement details of typical slabs.	PO 3	3
ACEB04.08	CLO 8	Draw the typical reinforcement details of typical Spread footings.	PO 1, PO 3	3
ACEB04.09	CLO 9	Draw the detailing of north light roof structures.	PO 3	3
ACEB04.10	CLO10	Draw the detailing of Trusses.	PO 3	3
ACEB04.11	CLO11	Draw the perspective view of one storey building.	PO 5	3
ACEB04.12	CLO 12	Draw the perspective view of two storey building.	PO 5	3

3 = High; 2 = Medium; 1 = Low

X. MAPPING COURSE LEARNING OUTCOMES LEADING TO THE ACHIEVEMENT OF PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES:

Course Learning Outcomes (CLOs)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO 1	2		2		2								3	2	
CLO 2	2		2		2								3	2	
CLO 3	3		3		3								3	2	
CLO 4	3		3		3								3	2	
CLO 5	3		3		3								3	2	
CLO 6	3		3		3								3	2	
CLO 7	3		3		3								3	2	
CLO 8	3		3		3								3	2	
CLO 9	3		3		3								3	2	
CLO 10	3		3		3								3	2	

Course Learning Outcomes (CLOs)	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO 11	3		3		3								3	2	
CLO 12	3		3		3								3	2	

3 = High; 2 = Medium; 1 = Low

XI. ASSESSMENT METHODOLOGIES – DIRECT

CIE Exams	PO 1,PO 3,PO5 PSO 1,PSO 2	SEE Exams	PO 1,PO 3,PO5 PSO 1,PSO 2	Assignments	-	Seminars	-
Laboratory Practices	PO 1,PO 3,PO5 PSO 1,PSO 2	Student Viva	PO 1	Mini Project	-	Certification	-

XII. ASSESSMENT METHODOLOGIES - INDIRECT

✓	Early Semester Feedback	✓	End Semester OBE Feedback
✗	Assessment of Mini Projects by Experts		

XIII. SYLLABUS

LIST OF EXPERIMENTS	
Week-1	BUILDINGS
Batch-I: Load bearing walls including details of doors and windows. Batch-II: Load bearing walls including details of doors and windows.	
Week-2	STAND DRAWING
Batch-I: Typical two storied building including all MEP, joinery, rebars, finishing and other details. Batch-II: Typical two storied building including all MEP, joinery, rebars, finishing and other details.	
Week-3	RCC FRAMED STRUCTURES-1
Batch-I: Floor plans, Elevations. Batch-II: Floor plans, Elevations.	
Week-4	RCC FRAMED STRUCTURES-2
Batch-I: Sectional views. Batch-II: Sectional views.	
Week-5	REINFORCEMENT DRAWING-1
Batch-I: Typical beams. Batch-II: Typical beams.	
Week-6	REINFORCEMENT DRAWING-2
Batch-I: Typical Columns. Batch-II: Typical Columns.	
Week-7	REINFORCEMENT DRAWING-3

Batch-I: Typical Slabs. Batch-II: Typical Slabs.	
Week-8	REINFORCEMENT DRAWING-4
Batch-I: Typical Spread footings. Batch-II: Typical Spread footings.	
Week-9	INDUSTRIAL BUILDINGS-1
Batch-I: North light roof structures. Batch-II: North light roof structures.	
Week-10	INDUSTRIAL BUILDINGS-2
Batch-I: Trusses. Batch-II: Trusses.	
Week-11	PERSPECTIVE VIEW-1
Batch-I: One storey buildings. Batch-II: One storey buildings.	
Week-12	PERSPECTIVE VIEW-2
Batch-I: Two storey buildings Batch-II: Two storey buildings	

XIV. COURSE PLAN:

The course plan is meant as a guideline. Probably there may be changes.

Week	Topics to be covered	Course Learning Outcomes (CLOs)	Reference
1	Load bearing walls including details of doors and windows.	CLO1	T1,T2
2	Typical two storied building including all MEP, joinery, rebars, finishing and other details.	CLO 2	T1,T2
3	Floor plans, Elevations.	CLO 3	T1,T2
4	Sectional views.	CLO 4	T1,T2
5	Typical beams.	CLO 5	T1,T2
6	Typical Columns.	CLO 6	T1,T2
7	Typical Slabs	CLO 7	T1,T2
8	Typical Spread footings	CLO 8	T1,T2
9	North light roof structures	CLO 9	T1,T2
10	Trusses.	CLO 10	T1,T2
11	One storey buildings.	CLO 11	T1,T2
12	Two storey buildings.	CLO 12	T1,T2

XV. GAPS IN THE SYLLABUS - TO MEET INDUSTRY / PROFESSION REQUIREMENTS:

S NO	Description	Proposed actions	Relevance with POs	Relevance with PSOs
1	For the better understanding can go through the addition of part drawing section.	NPTEL & Exercise Practices	PO 1, PO 2, PO 3	PSO 1
2	Indicating Geometrical Tolerances on the Drawing	NPTEL & Exercise Practices	PO 2, PO 5	PSO 2
3	Introduce of 3D modelling (Isometric Views)	NPTEL & Exercise Practices	PO 2, PO 3	PSO 2

4	Encourage students to draw through the computer aided drafting (CAD) by taking the industrial components.	Assignments / Laboratory Practices	PO 1, PO 3, PO 4	PSO 2
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Prepared by:
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