



# INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

## CIVIL ENGINEERING

### COURSE DESCRIPTOR

Course Title	PROJECT PLANNING AND DEVELOPMENT LABORATORY				
Course Code	ACE114				
Programme	B. Tech				
Semester	VII	CIVIL			
Course Type	Core				
Regulation	IARE - R16				
Course Structure	Theory			Practical	
	Lectures	Tutorials	Credits	Laboratory	Credits
	-	-	-	3	2
Chief Coordinator	Mr. S. Selva Prakash, Assistant Professor				
Course Faculty	Mr. Ch. Balakrishna, Assistant Professor				

#### I. COURSE OVERVIEW:

Project planning involves a series of steps that determine how to achieve a particular community or organizational goal or set of related goals. A project charter provides a brief description of the project scope, quality, time, cost, and resource constraints as described during project planning. Tender documents may be prepared for a range of contracts, such as equipment supply, the main construction contract including design by the contractor, demolition, enabling works. Valuation is the technique of estimation or determining the fair price or value of property such as building, a factory, other engineering structures of various types, land etc.

#### II. COURSE PRE-REQUISITES:

Level	Course Code	Semester	Prerequisites	Level
-	-	-	-	-

#### III. MARKS DISTRIBUTION:

Subject	SEE Examination	CIA Examination	Total Marks
Project planning and development 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	
	Type of Assessment	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 16<sup>th</sup> 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	<b>Engineering knowledge:</b> Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.	2	LCD / PPT
PO 2	<b>Problem analysis:</b> Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences	2	Seminar
PO 5	<b>Modern tool usage:</b> 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
PO 10	<b>Communication:</b> 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	Seminar

**3 = High; 2 = Medium; 1 = Low**

## VII. HOW PROGRAM SPECIFIC OUTCOMES ARE ASSESSED:

Program Specific Outcomes (PSOs)		Strength	Proficiency assessed by
PSO 1	<b>ENGINEERING KNOWLEDGE:</b> 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.	2	Seminar
PSO 2	<b>BROADNESS AND DIVERSITY:</b> 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	Practical's
PSO 3	<b>SELF-LEARNING AND SERVICE:</b> 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	Enrich the concepts of the construction techniques, equipment, project feasibility and project planning through site visits
II	Illustrate the work flow of construction activities and cash flow analysis.
III	Generate time and motion study, work measurement and prepare models for various construction techniques, equipment.
IV	Apply the process of tendering and bidding for a project and its valuation.

**IX. COURSE LEARNING OUTCOMES (CLOs):**

<b>CLO Code</b>	<b>CLO's</b>	<b>At the end of the course, the student will have the ability to:</b>	<b>PO's Mapped</b>	<b>Strength of Mapping</b>
ACE114.01	CLO 1	Have an overview of the project planning and development process.	PO 1, PO 2	2
ACE114.02	CLO 2	Identify stage includes a needs assessment process to determine the needs and problems in a construction project.	PO 1, PO 2, PO 5	3
ACE114.03	CLO 3	Prepare the techno- commercial information on the new construction materials,.	PO 1, PO 2, PO 10	2
ACE114.04	CLO 4	Perform, report daily progress motion study work measurement of any one construction activity.	PO 1	3
ACE114.05	CLO 5	Estimate the quantities and bulk purchases of construction materials.	PO 2, PO 5	2
ACE114.06	CLO 6	Prepare, crashing and updating of precedence network for a major construction work.	PO 1	3
ACE114.07	CLO 7	Exercise cash flow analysis.	PO 2, PO 5	3
ACE114.08	CLO 8	Prepare the models and charts related to various construction techniques, equipment, organizational structures of existing companies.	PO 1, PO5	3
ACE114.09	CLO 9	Study the feasibility aspects, tendering procedures, accounting system of civil structures	PO 1, PO 10	3
ACE114.10	CLO10	Understand the fund raising and other financial aspects, billing procedures	PO 2, PO 5, PO 10	2
ACE114.11	CLO11	Study of tender notices, tender documents of contract document.	PO 1, PO10	2
ACE114.12	CLO 12	Understand the Valuation of land and building using various methods like Rental Method of Valuation, Direct Comparisons of the capital value.	PO 1, PO 2	2

**3 = High; 2 = Medium; 1 = Low**

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

<b>Course Learning Outcomes (CLOs)</b>	<b>Program Outcomes (POs)</b>												<b>Program Specific Outcomes (PSOs)</b>		
	<b>PO1</b>	<b>PO2</b>	<b>PO3</b>	<b>PO4</b>	<b>PO5</b>	<b>PO6</b>	<b>PO7</b>	<b>PO8</b>	<b>PO9</b>	<b>PO10</b>	<b>PO11</b>	<b>PO12</b>	<b>PSO1</b>	<b>PSO2</b>	<b>PSO3</b>
CLO 1	2	2													
CLO 2	3	3			3								2		
CLO 3	2	2								2					
CLO 4	3													2	
CLO 5		2			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 6	3													2	
CLO 7	3				3								2		
CLO 8	3				3								2		
CLO 9	3								3				2		
CLO 10		2			2				2						
CLO 11	2								2						
CLO 12	2	2												2	

3 = High; 2 = Medium; 1 = Low

#### XI. ASSESSMENT METHODOLOGIES – DIRECT

CIE Exams	PO1,PO2, PO5,PO10	SEE Exams	PO1,PO2, PO5,PO10	Assignments	-	Seminars	PO 10
Laboratory Practices	PO1,PO2, PO5,PO10	Student Viva	PO1,PO2, PO5,PO10	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	
<b>Week-1</b>	<b>SITE VISIT-I</b>
Site visit to study the construction techniques and use of major construction equipment associated with the ongoing work. Report on the site visit to be submitted.	
<b>Week-2</b>	<b>SITE VISIT-II</b>
Site visit to study the construction techniques and use of major construction equipment associated with the ongoing work. Report on the site visit to be submitted.	
<b>Week-3</b>	<b>NEW ADVANCES IN CONSTRUCTION</b>
Collection of techno- commercial information on the new construction materials, methods and construction equipment available in the market.	
<b>Week-4</b>	<b>WORK FLOW OF CONSTRUCTION ACTIVITIES</b>
Performing and reporting of time and motion study work measurement of any one construction activity.	

<b>Week-5</b>	<b>QUANTITY ESTIMATION AND PURCHASE</b>
Field exercise on estimation of quantities and bulk purchases.	
<b>Week-6</b>	<b>PRECEDENCE NETWORK</b>
Preparation, crashing and updating of precedence network for a major construction work.	
<b>Week-7</b>	<b>CASH FLOW ANALYSIS</b>
Exercise on cash flow analysis	
<b>Week-8</b>	<b>MODEL PREPARATION</b>
Preparation of models and charts related to various construction techniques, equipment, organizational structures of existing companies. This is a group activity to generate interest and explore creativity.	
<b>Week-9</b>	<b>SITE VISIT-III</b>
Study of feasibility aspects, tendering procedures, accounting system, fund raising and other financial aspects, billing procedures etc associated with on-going major construction work. Visit report is to be submitted.	
<b>Week-10</b>	<b>SITE VISIT-IV</b>
Study of feasibility aspects, tendering procedures, accounting system, fund raising and other financial aspects, billing procedures etc associated with on-going major construction work. Visit report is to be submitted.	
<b>Week-11</b>	<b>TENDERING</b>
Collection and study of tender notices, tender documents of contract document associated with civil engineering works.	
<b>Week-12</b>	<b>VALUATION</b>
Valuation of land and building using various methods. A report to be submitted on the same.	

#### **XIV. COURSE PLAN:**

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

<b>Week</b>	<b>Topics to be covered</b>	<b>Course Learning Outcomes (CLOs)</b>	<b>Reference</b>
1	Site visit to study the construction techniques and use of major construction equipment associated with the ongoing work. Report on the site visit to be submitted.	CLO1	T1,T2
2	Site visit to study the construction techniques and use of major construction equipment associated with the ongoing work. Report on the site visit to be submitted.	CLO 2	T1,T2

3	Collection of techno- commercial information on the new construction materials, methods and construction equipment available in the market..	CLO 3	T1,T2
4	Performing and reporting of time and motion study work measurement of any one construction activity.	CLO 4	T1,T2
5	Field exercise on estimation of quantities and bulk purchases	CLO 5	T1,T2
6	Preparation, crashing and updating of precedence network for a major construction work.	CLO 6	T1,T2
7	Exercise on cash flow analysis	CLO 7	T1,T2
8	Preparation of models and charts related to various construction techniques, equipment, organizational structures of existing companies. This is a group activity to generate interest and explore creativity.	CLO 8	T1,T2
9	Study of feasibility aspects, tendering procedures, accounting system, fund raising and other financial aspects, billing procedures etc associated with on-going major construction work. Visit report is to be submitted.	CLO 9	T1,T2
10	Study of feasibility aspects, tendering procedures, accounting system, fund raising and other financial aspects, billing procedures etc associated with on-going major construction work. Visit report is to be submitted.	CLO 10	T1,T2
11	Collection and study of tender notices, tender documents of contract document associated with civil engineering works.	CLO 11	T1,T2
12	Valuation of land and building using various methods. A report to be submitted on the same.	CLO 12	T1,T2

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

<b>S NO</b>	<b>Description</b>	<b>Proposed actions</b>	<b>Relevance with POs</b>	<b>Relevance with PSOs</b>
1	To improve standards and analyze the concepts.	Open ended problems	PO 1	PSO 1
2	Encourage students to solve real time applications and prepare towards competitive examinations.	Open ended problems	PO 1	PSO 1

**Prepared by:**

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**HOD, CE**