SEMESTER S5

PROJECT ENGINEERING

Course Code	**PECHT524**	**CIE Marks**	40
Teaching Hours/Week (L: T:P: R)	3:0:0:0	**ESE Marks**	60
Credits	3	**Exam Hours**	2 Hrs. 30 Min.
Prerequisites (if any)	Nil	**Course Type**	Theory

Course Objectives:

1. The objective is to impart, a basic knowledge in project planning, plant process design, economic evaluation and financial control.
2. To describe the importance of process development and process engineering to students.

SYLLABUS

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Module No.	Syllabus Description	Contact Hours
1	**Introduction:** Classification of Projects, Scope of Project engineering - the role of project engineer. **Development of project**: R&D, TEFR, Importance of Laboratory development of new process – Bench scale experiments – pilot plant studies – Semi-commercial plant. **Process engineering**: Conceptual process design- Preliminary process design- Detailed process design (FEED). Flow diagrams – Plot plans - Engineering design and drafting (Detailed Engineering). Plant location and site selection, Preliminary data for construction of projects.	**10**
2	**Planning and scheduling of projects**: use of bar chart, PERT/ CPM - Critical path calculations. **Site development**: Foundation – Erection and site fabrication – Construction – Insulation – Start up and commissioning – Trial runs – Guarantee run and hand over	**8**

3	. Company formation- Process license – Technology Transfer – Statutory sanctions. **Contracts and Contractors:** Introduction, detailing of scope of work, factors in selecting scope of work, Type of contracts- Factors in selecting type of contract, contractor selection	**8**
4	**Selection of process equipments:** Standard versus special equipment selection criteria, specification sheets. Scope of piping engineering, pipe sizing technique, Codes and standards, Piping design, Safety in plant design. **Project financing:** Means of finance, Financial institutions, special schemes, Financial institutions in India, key financial indicators and ratios of new projects	**10**

Course Assessment Method

(CIE: 40 marks , ESE: 60 marks)

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Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks **(8x3 =24marks)**	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 sub divisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Explain the role of a project engineer in the design and construction of a process plant.	K2
CO2	Develop skills required for project planning, scheduling and analyze processes for project execution & control.	K3
CO3	Apply the fundamental elements of a contract and choose the right type of contract for a given situation.	K3
CO4	Develop skills required to prepare specification of the equipments and able to do the piping.	K3

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

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CO-PO Mapping Table:

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**										**2**	
CO2	**3**										**2**	
CO3	**3**										**2**	
CO4	**3**										**2**	

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Project Engineering of Process Plants.	Rase & Barrow	John Wiley	
2	Project Engineering of Process Plants	Bhasin, S.D	Chemical Engineering Education Development Centre, I.I.T., Madras	1979
3	Project Engineering	Frederick B. Plummer	BH	

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	PERT and CPM	Srinath L. S	Affiliated east press Pvt. Ltd	
2	Chemical engineering handbook	Perry J. H	Mc Graw Hill	
3	Applied project engineering and Management	Ernest E. Ludwig	Gulf Pub. Co	1988
4	Plant design and economics for chemical engineers.	Peter S. Max & Timmer Haus.	Mc Graw Hill	2002

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Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://archive.nptel.ac.in/courses/110/104/110104073/
2	https://digimat.in/nptel/courses/video/103103039/L38.html
3	https://nitttrc.edu.in/nptel/courses/video/103103039/L46
4	https://tjsec.digimat.in/nptel/courses/video/103103039/L25.html