

INSTITUTE	DIPLOMA STUDIES
PROGRAM	DIPLOMA ENGINEERING (CHEMICAL ENGINEERING)
SEMESTER	4
COURSE TITLE	CHEMICAL PROCESS SOFTWARE
COURSE CODE	09CH2404
COURSE CREDITS	2

Objective:

- 1 To study the simulation techniques of chemical processes and to gain skills in using process simulators.

Course Outcomes: After completion of this course, student will be able to:

- 1 Draw the process flow chart in software
- 2 Simulate the various operations of chemical engineering
- 3 Control the process parameter and optimize an output of process

Pre-requisite of course: Basic knowledge of computers, Microsoft office, Chemical engineering operations likes distillation, absorption, extraction, absorption, filtration, etc

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	4	0	30	20	25	25

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	Experiment 1 To study, working and operating practice of simple distillation operation.	4
2	Experiment 2 To study, working and operating practice of stream mixing operation.	4
3	Experiment 3 To study, working and operating practice of filtration operation.	4

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
4	Experiment 4 To study, working and operating practice of flow sheet unit operation.	4
5	Experiment 5 To study, working and operating practice of absorption operation.	4
6	Experiment 6 To study, working and operating practice of azeotropic distillation operation.	4
7	Experiment 7 To study, working and operating practice of stream splitting operation.	4
8	Experiment 8 To study, working and operating practice of extractive distillation operation.	4
9	Experiment 9 To study, working and operating practice of petroleum distillation operation.	4
10	Experiment 10 To study, working and operating practice of liquid-liquid extraction operation.	4
11	Experiment 11 To study, working and operating practice of simple membrane unit operation.	4
12	Experiment 12 To study, working and operating practice of three phase separation operation..	4
13	Experiment 13 To study, working and operating practice of solid separation operation.	4
14	Experiment 14 To study about PID controllers.	4
Total Hours		56

References:

- 1 Process Modeling, Simulation, and Control for Chemical Engineering, Process Modeling, Simulation, and Control for Chemical Engineering, Luyben W.L., McGraw-Hill, 1998
- 2 Process Plant Simulation, Process Plant Simulation, Babu, B.V., Oxford University Press, 2004
- 3 Process Modeling, Process Modeling, Denn, M. M., Longman Sc& Tech., 2007
- 4 Process Analysis and Simulation: Deterministic Systems, Process Analysis and Simulation: Deterministic Systems, Himmelblau, D.M and Bischoff, K.B., John Wiley, 1968

References:

- 5 Fundamentals and Modeling of Separation Processes: Absorption, Distillation, Evaporation and Extraction, Fundamentals and Modeling of Separation Processes: Absorption, Distillation, Evaporation and Extraction, Holland, C. D., Prentice-Hall, 1974

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery and evaluation					
Remember / Knowledge	Understand	Apply	Analyze	Evaluate	Higher order Thinking
40.00	40.00	10.00	10.00		

Instructional Method:

- 1 The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.
- 2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory.
- 3 Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory.

Supplementary Resources:

- 1 https://onlinecourses.swayam2.ac.in/aic20_sp08/preview
- 2 https://onlinecourses.nptel.ac.in/noc21_ch44/preview