COURSE TITLE	**PROCESS SIMULATION USING DWSIM - I**
COURSE CODE	**01CH0307**
COURSE CREDITS	**1**

Objective:

1 The objective of this course is to make students familiar with basics of simulation using DWSIM through hands-on sessions.

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

1 Remember the basic of components of DWSIM software

2 Understand the addition of material and energy stream into the unit operation or process

3 Apply the basic concept of Chemical Engineering and simulate the unit operation or process.

4 Evaluate the unit operation or process on the basis of independent and dependent variable.

Pre-requisite of course: Basic of Process calculation, Thermodynamics

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
0	0	2	0	0	0	50	50

Contents : Unit	Topics	Contact Hours
Total Hours		

Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Experiment 1** To demonstrate of DWSIM tools and property package	2
2	**Experiment 2** To create the material & Energy stream.	2
3	**Experiment 3** To simulate the two input streams having a pure compound by using a mixing operation.	2
4	**Experiment 4** To simulate the two input streams having two more compounds by using a mixing operation.	2
5	**Experiment 5** To study the sensitivity analysis of mixer and plot a graph between independent and dependent variable.	2

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
6	**Experiment 6** To simulate the splitter.	2
7	**Experiment 7** To simulate the cooler	2
8	**Experiment 8** To study the sensitivity analysis of cooler and plot a graph between independent and dependent variable.	2
9	**Experiment 9** Simulation of heater	2
10	**Experiment 10** To study the sensitivity analysis of heater and plot a graph between independent and dependent variable.	4
11	**Experiment 11** To simulate the centrifugal pump and perform the sensitivity analysis.	4
12	**Experiment 12** To calculate the power requirement of pump for supplying water from low to high elevated place.	4
Total Hours		**30**

Textbook :

1 Principles of chemical engineering processes. , Ghasem, N., & Henda, R. , CRC Press, 2008

References:

1 Basic principles and calculations in chemical engineering, Basic principles and calculations in chemical engineering, Himmelblau, D. M., & Riggs, J. B., FT press, 2012

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					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
20.00	30.00	30.00	20.00	0.00	0.00

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.

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Instructional Method:

2 The internal evaluation will be done on the basis of continuous evaluation of students in the laboratory and class-room.

3 Practical examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

4 Students will use supplementary resources such as online videos, NPTEL videos, ecourses, Virtual Laboratory.

Supplementary Resources:

1 https://onlinecourses.swayam2.ac.in/aic20_sp08/preview

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