BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI
INSTRUCTION DIVISION
SECOND SEMESTER 2014-2015

Course Handout (Part II)

Date: 06/01/2016

In addition to Part I (General Handout for all courses appended to the Time Table), this portion gives further specific details regarding the course.

Course No.	: CHE F341
Course Title	: Chemical Engineering Laboratory - II
Instructor-in-Charge	: AJAYA KUMAR PANI
Instructors	: Raman Sharma, Ajaya Kumar Pani, Amit Jain

1. Course Description

The course comprises of experiments from various subjects: reaction engineering, mechanical operations and process control. The course involves rigorous experiments related to the theory of kinetics and reactor design: kinetic parameter evaluation for batch reactor, semi-batch reactor, continuous stirred tank reactor (CSTR), plug flow reactor (PFR), packed bed reactor (PBR); RTD studies of CSTR, PFR and PBR; Mechanical Operations: theory and experiments related to crushing and grinding, filtration, froth floatation, and cyclone separation; Process Control: Pressure Control, Flow Control, Temperature control, level control, control valve characteristics.

2. Scope and Objective

The main objective of this course is to educate the students with different aspects of chemical engineering experiments. The students will carry out the set of experiments that will expose them to experimental methods and to integrate theoretical knowledge and concept to practical experience. Students will also learn the operation of some scientific equipment for performing experiments.

3. Text Book

Lab Manual for Chemical Engineering Laboratory - II @ Nalanda BITS Portal.

4. Reference Books

1. Lab Manual supplied by Vendors.

5. Course Plan

The students will perform the following eighteen experiments with an emphasis on individual planning and execution of the experiments.

CYCLE - I		
S. No.	**Experiment**	**Marks**
1.	Isothermal Batch Reactor	9
2.	Isothermal Semi batch reactor	9
3.	a. Isothermal CSTR (Jacket heating) b. Isothermal CSTR (coil heating)	9
4.	a. Isothermal PFR (Straight tube type) b. Isothermal PFR (Coiled tube type)	9
5.	a. Jaw Crusher b. Roll Crusher c. Ball mill	9
6.	Plate and Frame Filter Press	9
7.	Rotary Vacuum Filter	9
8.	a. Basket Centrifuge b. Froth Floatation Cell	9
9.	a. Cone Classifier b. Thickener	9
10.	Trommel	9
CYCLE - II		
S. No.	**Experiment**	**Marks**
11.	Cascade CSTR	9
12.	Combined flow Reactor	9
13.	Packed Bed Reactor	9
14.	a. RTD studies CSTR b. RTD studies PFR c. RTD studies Packed Bed Reacto	9
15.	Level Control Trainer	9

16.	Pressure Control Trainer	9
17.	Flow Control Trainer	9
18.	Control Valve Characteristics	9
19.	Multi Process Trainer	9
20.	First Order and second Order System	9

5. Evaluation Scheme

EC No.	Evaluation Component	Duration	Marks	Date & Time	Nature of Component
1.	Continuous Evaluation	2 hrs/lab	180	Regular Laboratory Hours	Open book
2.	Mid-semester Examination	2 hrs	60		Experiment Performance and quiz
3.	Comprehensive Examination	2 hrs	60		Experiment Performance and quiz

Chamber Consultation Hour: Monday, 10 AM to 11 AM. (A K Pani)
Thursday, 4.00 PM to 5.00 PM. (Amit Jain)
Tuesday, 12 Noon to 1 PM (Raman Sharma)

Notices: Notices concerning the course will be displayed on the Chemical Engineering Department Notice Board.

Instructor-in-Charge
CHE F341