

Design Project (Chemical Engineering)

Module Code:	CPE6002-C
Academic Year:	2018-19
Credit Rating:	30
School:	Department of Chemical Engineering
Subject Area:	Chemical and Process Engineering
FHEQ Level:	FHEQ Level 6
Module Leader:	Professor Iqbal Mujtaba

Additional Tutors:

Pre-requisites:

Co-requisites:

Contact Hours

Type	Hours
Tutorials	24
Other (DO NOT USE)	376

Availability Periods

Occurrence	Location/Period
BDA	University of Bradford / Academic Year (Sept - May)

Module Aims

To demonstrate their ability to organise themselves in a project engineering team and to carry out a substantial Chemical Engineering process design from the preliminary stage to detailed design. To be aware of the financial, environmental and other aspects associated with a major design project. Apply the skills acquired from all previous modules.

Outline Syllabus

Team Work (11 weeks): Process appreciation; Preliminary process flow diagrams; Initial material and energy balances; Presentation in week 5 and an initial report. Final process flow diagram and revised material and energy balances, including any revisions that may ensue from the oral presentations and/or possible plant visits.

Individual Work (7 weeks): Chemical Engineering Design: (i) Specification of all plant items including a statement of duty, a preliminary recommendation of type of equipment, an estimate of services required and materials of construction. (ii) Complete design calculations on specified items of equipment. (iii) Approximated design calculations on specified equipment items.

Special Task (5 weeks): each student will complete one special task allocated by the tutor. (a) An engineering flow diagram. (b) Plant layout drawings. (c) Capital and manufacturing cost estimates. (d) Plant commissioning and normal plant operation. (e) Mechanical engineering design of one plant item. (f) Process integration study.

Group work on hazard and operability study (1 week): This study of a section of the plant specified by the tutor may lead to proposals for modifying the flow sheet and/or procedures for the commissioning and normal operations.

Module Learning Outcomes

On successful completion of this module, students will be able to...

- 1 Translate the range of knowledge into a single practical Chemical Engineering design application
- 2 Design a chemical processing plant given the specifications. Evaluate equipment performance, environmental impact and process safety.
- 3
 - a) Have experience of working in a design team
 - b) Organising and managing a design project
 - c) Be able to select the most appropriate process based on available data
 - d) Be able to write a detailed design report
 - e) Communicate effectively in a team

Learning, Teaching and Assessment Strategy

Group centred work with one academic supervisor for each group of approximately 6 students. Assessment by group and individual reports. Individual mark of the group component will be based on peer review by the students and supervisor's input.

Mode of Assessment

Type	Method	Description	Length	Weighting	Final Assess'
Summative	Presentation	Group PowerPoint 5 min/student	5 minutes	10%	No
Summative	Coursework	Individual Report	-4500 words	55%	Yes

Summative	Coursework	Group Report 3500 Words	-3500 words	35%	No
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Legacy Code (if applicable)

ENG3321J

Reading List

To view Reading List, please go to [rebus:list](#).