Course Specification

Published Date:	15-Sep-2020
Produced By:	Laura Clode
Status:	Validated

Core Information

Awarding Body / Institution:	University of Wolverhampton		
School / Institute:	School of Engineering		
Course Code(s):	MA010H01UV MA010H31UV	Full-time Part-time	3 Years 6 Years
Course Title:	BEng (Hons) Chemical Engineering		
Hierarchy of Awards:	Bachelor of Engineering with Honours Chemical Engineering Bachelor of Engineering Chemical Engineering Diploma of Higher Education Chemical Engineering Certificate of Higher Education Chemical Engineering University Statement of Credit University Statement of Credit		
Language of Study:	English		
Date of DAG approval:	05/Oct/2015		
Last Review:	2014/5		
Course Specification valid from:	2014/5		
Course Specification valid to:	2020/1		

Academic Staff

Course Leader:	
Head of Department:	Dr Syed Hasan

Course Information

Location of Delivery:	University of Wolverhampton
Category of Partnership:	Not delivered in partnership
Teaching Institution:	University of Wolverhampton
Open / Closed Course:	This course is open to all suitably qualified candidates.

Entry Requirements:

Entry requirements are subject to regular review. The entry requirements applicable to a particular academic year will be published on the University website (and externally as appropriate e.g. UCAS

2017 Entry

- A Level minimum of BBC. One A Level must include Maths at grade B or above. Chemistry should also be passed wth grade B or C.
- Applicants will normally be expected to hold GCSE English and Maths at grade C+/4 or above (or equivalent)
- BTEC QCF Extended Diploma grade MMM, BTEC QCF Diploma grade DM
- If you've got other qualifications or relevant experience, please contact The Gateway for further advice before applying.

- International entry requirements and application guidance can be found here

Other Requirements

Students must have studied a minimum of two years post GCSE level. However, it is expected that some applicants will be mature students with work experience, who wish to further their career development. These applicants will be processed through standard procedures, which may involve an interview as part of the process. Please see http://wlv.ac.uk/mature for further information.

Those who do not meet the entry requirements may be offered an alternative course

Distinctive Features of the Course:

Chemical Engineering at Wolverhampton is industry focused and aims to prepare students to tackle challenges facing chemical and allied industries in the 21st century.

There are modules in the programme reviewing specialist issues of sustainability and life cycle engineering of products and processes addressed holistically and concurrently.

The programme will also teach Materials Engineering and Manufacturing Technology and Processes providing opportunity to address topics on resource efficiency management, material utilisation principle, energy management and waste minimisation which are topical in the present day Process and Manufacturing Engineering environments.

Educational Aims of the Course:

Modern society relies on the work of chemical and biochemical engineers, who help to manage resources, protect the environment and control health and safety procedures, while developing the processes that make the products we desire or depend on. Chemical engineering degree programme will provide:

- A deep training about chemical processes and also the products resulting from the reactions which apply these processes. Case studies for many of the relevant modules would be drawn from Food technology and processing industry based within the West Midlands region.

- Education on how raw chemical related materials can be transformed into useful products in a safe and cost effective way. For example petrol, plastics and synthetic fibres such as polyester and nylon, all come from oil. Chemical engineers will understand how to alter the chemical, biochemical or physical state of a substance, to create everything from face creams to fuels.
- Training to engineers on energy resource exploitation including both fossil fuel and renewables, sustainable energy generation, use and consumption.
- Current available knowledge on resource efficiency management and material recycling, health and safety in engineering practice.
- Education on engineering design especially in a chemical and biochemical processing environment and also on the principles of reaction engineering.

Intakes:

September

Major Source of Funding:

Office for Students (OFS)

Tuition Fees:

Tuition fees are reviewed on an annual basis. The fees applicable to a particular academic year will be published on the University website.

Year	Status	Mode	Amount
2020/1	H	Full Time / Sandwich	£9250.00
2020/1	Overseas	Full Time / Sandwich	£12250.00
2020/1	H	Part Time	£3050.00
2020/1	Overseas	Part Time	£6125.00

PSRB:

MA010H01UV (Full-time)

Professional Accreditation Body:
Institution of Chemical Engineers (IChemE)

Accrediting Body:
Institution of Chemical Engineers (IChemE)

Accreditation Statement:
Accredited by the Institution of Chemical Engineers (IChemE) on behalf of the Engineering Council for the purposes of fully meeting the academic requirement for registration as an Incorporated Engineer and partially meeting the academic requirement for registration as a Chartered Engineer.

Approved	Start	Expected End	Renewal
14/May/2019	01/Sep/2015	31/Aug/2020	29/Feb/2020

MA010H31UV (Part-time)

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Course Structure:

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 1

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
4ET011	Principles of Chemical Engineering	20	SEM1	Core
4CH003	Fundamentals of Organic Chemistry	20	SEM1	Core
4MA007	Engineering Mathematics	20	SEM1	Core
4ET012	Unit Operations	20	SEM2	Core
4MA002	Engineering Materials	20	SEM2	Core
4ET004	Thermodynamics and Fluids I	20	SEM2	Core

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 2

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
5ET030	Transport Processes	20	SEM1	Core
5ET032	Fluid Mechanics and Multiphase Systems	20	SEM1	Core
5MM023	Mathematical Modelling	20	SEM2	Core
5ET015	Reaction Engineering	20	SEM2	Core
5ET014	Unit Processes and design	20	SEM1	Core
5ET033	Petroleum Chemistry and Refining	20	SEM2	Core

September (Full-time)

Part time students study alongside full time students. However, they do not study more than 80 credits in each academic calendar year.

Year 3

Full time and Sandwich Undergraduate Honours students normally study 120 credits per academic year; 60 credits semester 1 and 60 credits semester 2.

Module	Title	Credits	Period	Type
6ET025	Environmental Engineering	20	SEM1	Core
6ET015	Safety and Engineering Practice	20	SEM1	Core
6ET012	Design Project	40	YEAR	Core
6ET014	Process Dynamics and Control	20	SEM2	Core
6MA027	Discovery, research and specialism	20	SEM2	Core

Please note: Optional modules might not run every year, the course team will decide on an annual basis which options will be running, based on student demand and academic factors, to create the best learning experience.

Learning, Teaching and Assessment

Academic Regulations Exemption:

Section 4.4.3 & Section 4.4.4 - Exemption in accordance with Professional Body (IChemE) requirements. Compensation will not be permitted on any modules with no additional third attempt (repeats will be allowed).

APPROVED by AFRSC (10/11/2016).

Reference Points:

Faculty of Science and Engineering E&D policy

QAA descriptor for a Higher Education qualification

The framework for higher education qualifications in England, Wales and Northern

Ireland (August 2008)

Subject Benchmark Statement for Chemical Engineering

Institution of Engineering and Technology (IET) policy and guidelines

Institution of Mechanical, Electrical, Civil and Chemical Engineering

Equality Act 2010

Learning Outcomes:

CertHE Course Learning Outcome 1 (CHECLO1)

Demonstrate knowledge of the underlying concepts and principles associated with your area(s) of study, and an ability to evaluate and interpret these within the context of that area of study

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CertHE Course Learning Outcome 2 (CHECLO2)

Demonstrate an ability to present, evaluate and interpret qualitative and quantitative data, in order to develop lines of argument and make sound judgements in accordance with basic theories and concepts of your subject(s) of study

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CertHE Course Learning Outcome 3 (CHECLO3)

Evaluate the appropriateness of different approaches to solving problems related to your area(s) of study and/or work

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CertHE Course Learning Outcome 4 (CHECLO4)

Communicate the results of your study/work accurately and reliably, and with structured and coherent arguments

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CertHE Course Learning Outcome 5 (CHECLO5)

Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of some personal responsibility

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DipHE Course Learning Outcome 1 (DHECLO1)

Demonstrate knowledge and critical understanding of the well-established principles of your area(s) of study, and of the way in which those principles have developed with an understanding of the limits of your knowledge, and how this influences analyses and interpretations based on that knowledge.

DipHE Course Learning Outcome 2 (DHECLO2)

Demonstrate the ability to apply underlying concepts and principles outside the context in which they were first studied, including, where appropriate, the application of those principles in an employment context

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DipHE Course Learning Outcome 3 (DHECLO3)

Demonstrate knowledge of the main methods of enquiry in the subject(s) relevant to the named award, and ability to evaluate critically the appropriateness of different approaches to solving problems in the field of study

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DipHE Course Learning Outcome 4 (DHECLO4)

Use a range of established techniques to initiate and undertake critical analysis of information, and to propose

solutions to problems arising from that analysis

DipHE Course Learning Outcome 5 (DHECLO5)

Effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively

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DipHE Course Learning Outcome 6 (DHECLO6)

Demonstrate the qualities and transferable skills necessary for employment, requiring the exercise of personal responsibility and decision-making and undertake further training, developing existing skills and acquire new competences that will enable them to assume significant responsibility within organisations

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Ordinary Degree Course Learning Outcome 1 (ORDCLO1)

Demonstrate knowledge and critical understanding of the principles of chemical engineering

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Ordinary Degree Course Learning Outcome 2 (ORDCLO2)

Understand the basic concepts and principles associated with operating in a chemical processing environment and especially for process control

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Ordinary Degree Course Learning Outcome 3 (ORDCLO3)

Show a deep understanding and appreciation of hazard and operability, safety and ethical principles in a chemical process environment

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Ordinary Degree Course Learning Outcome 4 (ORDCLO4)

Solve complex chemical engineering related problems, make decisions and effectively communicate information either individually or as part of a team

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Ordinary Degree Course Learning Outcome 5 (ORDCLO5)

Show a critical understanding of process engineering, plant and reactor design, and their implications for practice

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Ordinary Degree Course Learning Outcome 6 (ORDCLO6)

Demonstrate relevant personal and interpersonal skills, and thinking critically and creatively during problem solving especially when faced with engineering challenges

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Honours Degree Course Learning Outcome 1 (DEGCLO1)

Demonstrate knowledge and critical understanding of the principles of chemical engineering

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Honours Degree Course Learning Outcome 2 (DEGCLO2)

Understand the basic concepts and principles associated with operating in a chemical processing environment and especially for process control

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Honours Degree Course Learning Outcome 3 (DEGCLO3)

Show a deep understanding and appreciation of hazard and operability, safety and ethical principles in a chemical process environment

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Honours Degree Course Learning Outcome 4 (DEGCLO4)

Solve complex chemical engineering related problems, make decisions and effectively communicate information either individually or as part of a team

Honours Degree Course Learning Outcome 5 (DEGCLO5)

Show a critical understanding of process engineering, plant and reactor design, and their implications for practice

Honours Degree Course Learning Outcome 6 (DEGCLO6)

Demonstrate relevant personal and interpersonal skills, and thinking critically and creatively during problem solving especially when faced with engineering challenges

Overview of Assessment:

Module	Title	Course Learning Outcomes
4CH003	Fundamentals of Organic Chemistry	CHECLO1, CHECLO2, CHECLO4, CHECLO5
4ET004	Thermodynamics and Fluids I	CHECLO2, CHECLO3, CHECLO4, CHECLO5
4ET011	Principles of Chemical Engineering	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4ET012	Unit Operations	CHECLO1, CHECLO2, CHECLO3, CHECLO4, CHECLO5
4MA002	Engineering Materials	CHECLO2, CHECLO3, CHECLO4, CHECLO5
4MA007	Engineering Mathematics	CHECLO2, CHECLO3, CHECLO4
5AB017	Sandwich Placement	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5, DHECLO6
5ET014	Unit Processes and design	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5
5ET015	Reaction Engineering	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5
5ET030	Transport Processes	DHECLO1, DHECLO2, DHECLO5, DHECLO6
5ET032	Fluid Mechanics and Multiphase Systems	DHECLO1, DHECLO2, DHECLO3, DHECLO4
5ET033	Petroleum Chemistry and Refining	DHECLO1, DHECLO2, DHECLO3, DHECLO4, DHECLO5
5MM023	Mathematical Modelling	DHECLO2, DHECLO5, DHECLO6
6ET012	Design Project	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, DEGCLO6, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5, ORDCLO6
6ET014	Process Dynamics and Control	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4
6ET015	Safety and Engineering Practice	DEGCLO2, DEGCLO4, DEGCLO5, ORDCLO2, ORDCLO4, ORDCLO5
6ET025	Environmental Engineering	DEGCLO1, DEGCLO2, DEGCLO3, DEGCLO4, DEGCLO5, DEGCLO6, ORDCLO1, ORDCLO2, ORDCLO3, ORDCLO4, ORDCLO5, ORDCLO6
6MA027	Discovery, research and specialism	DEGCLO4, DEGCLO5, DEGCLO6, ORDCLO4, ORDCLO5, ORDCLO6

Teaching, Learning and Assessment:

- Lectures which are research and case study based.
- Tutorials which focus understanding gained at lectures and to underpin understanding by making it relevant to contextual / industrial situations.
- Seminars to enable exchange of ideas and knowledge with peers and with tutors.
- Workshops which develop practical skills such as information and data-handling.
- Design / Research projects enhancing practical research skills, problem-solving abilities and competencies to analyse, evaluate and present research data.

Assessment Methods:

At the University of Wolverhampton, a variety of modes of assessment will be used to support and test your learning and progress and to help you develop capabilities that are valued beyond your University studies and into your working life. Your course may include a variety of assessment activities:

Written examinations (including online examinations, open and closed book examinations and quizzes)
Coursework (for example, essays, reports, portfolios, project proposals and briefs, CVs, poster presentation)
Practical (for example, oral and video presentations, laboratory work, performances, practical skills assessment)

In the final year of your undergraduate degree, and at the end of your postgraduate degree, you are likely to be expected to write an extended piece of work or research, such as a dissertation or a practice-based piece of research.

Student Support:

This course is a multi- and inter-disciplinary course, bringing together expertise from a range of disciplines. As such there will be a wide variety of subject specific advice and assistance from across the University. This will be underpinned by the skills development throughout the Learning Centre.

University provided support:

As well as providing general counselling support the University Counselling Service provides short courses on topics such as "Self Confidence", "Stress Management and Relaxation" and "Life Skills". They also provide study skills and academic support, providing short courses such as provide help in areas such as "Writing and Assignment Skills", "Exam Techniques", "Enhancing Professional Skills", "Personal Development Planning" and "Making Choices for the Future."

University Learning Centres provide general academic skills support to all students. You can make an appointment with a study skills advisor for advice on areas such as academic writing, assignment planning, exam preparation, and time management.

In addition, there is a regular timetable of drop-in and bookable workshops covering information and digital literacy skills, including academic referencing. Faculty of Science and Engineering students are supported by a designated subject librarian who is available to support research and project work.

Course support:

At the start of your course you will be assigned a Personal Tutor who will guide you

through the induction process and provide support and academic counselling throughout your course on an appointment basis. They should be able to offer you advice and guidance to help you liaise with other staff and support facilities in the Faculty and University.

The Student Support Advisers (SSA) provides academic counselling and will be accessible throughout the week on a drop-in or appointment basis to discuss timetables, requests for extensions, requests for extenuating circumstances, general concerns about study and student life and general programme planning. The SSA will act as a first point of contact in relation to leave of absence (including returning after leave),

withdrawal, transferring to another course (internal and external) and changes to mode of attendance. Your Course Leader will be available thereafter for meetings by appointment to discuss leave of absence, withdrawal, transferring to another course (internal and external), changes to mode of attendance, returning after leave of absence and direct entrants.

Subject support:

Tutorials, workshops, seminars and meetings - provide the primary opportunities for students to interact with staff on topics relating to modules. All modules provide at least one of these forms of face-to-face support.

Formative feedback - tutors provide personalised written feedback on most summative assessments. The mechanism for feedback from purely formative tasks varies between assessments, but will always be provided in some form. Online formative tasks often provide feedback straight away. On occasions tutors may provide generalised verbal feedback to the whole class on points relating to an assessment.

Assessment and subject-based surgeries provide additional student support for subjects that students often need extra help with. They are often concentrated around the times when assessments take place. Revision sessions are provided for many modules that have exam-like tests and enable you to interact with tutors to review parts of the course. Mock exams and tests may provide opportunities to experience an examination environment before the final summative test and give you feedback on your understanding.

International Students:

The International Centre will provide pre and post entry visa and immigration support and advice on and arrange for the necessary paperwork to be submitted to UKBA. They will also provide appropriate University Induction support on arrival and be a point of contact for international students throughout their stay here. A range of social and cultural activities arranged by the International Centre will also promote the integration of international students into the whole of the University's learning community. English language support is also available through the international language centre in the University. Students will be encouraged to attend relevant industrial and professional conferences.

Employability in the Curriculum:

Chemical engineers are employed across a huge variety of sectors including: Chemicals and allied products, Pharmaceuticals, Energy, Water, Food and drink, Materials, Mining and minerals, Oil and gas, Process plant and equipment, Biotechnology, Business and management Consultancy. A career in chemical or biochemical engineering includes: Excellent job prospects especially in the Oil and Gas sector, Competitive starting salaries in the region of £28,000/y, High earning potential throughout your career.