

ASTON UNIVERSITY PROGRAMME SPECIFICATION

Programme Title	Chemical Engineering
UCAS/JACS Code	H803
School/Subject Area	School of Engineering and Applied Science Chemical Engineering and Applied Chemistry
Final Award	BEng
Interim Awards	Certificate of Higher Education Diploma of Higher Education
Mode(s) of Study	Full time Sandwich [Optional]
Normal Length of Programme	3 years [Full time] 4 years [Sandwich]
Total Credits	360 credits [Full time] 480 credits [Sandwich]
Programme Accredited By	Institution of Chemical Engineers
Dates Programme Specification Written and Revised	September 2005, July 2006, May 2007, May 2008, October 2008, August 2009, February 2010, August 2010, August 2011, August 2012, June 2013, September 2014

Education Aims of the Programme	<ul style="list-style-type: none"> • To provide students with the opportunities to realise their academic potentials through relevant and planned learning experiences. • To provide a thorough grounding in the basic principles of chemical engineering. • To provide students with appropriately structured curricula, combining teaching in theoretical and knowledge-based principles with practical skills training. • To provide an up-to-date and professionally accredited education satisfying the institutional requirements of the Institution of Chemical Engineers. • To produce graduate engineers with the qualities and skills that are in demand by employers and who are able to make a valuable contribution to society in general. • To offer students the opportunity to obtain relevant industrial experience by providing the option of a sandwich year.
Relevant Subject Benchmark Statements and other External and Internal Reference Points used to inform programme outcomes	<ul style="list-style-type: none"> • Institution of Chemical Engineers for accreditation requirements • QAA subject benchmark for General Engineering • Engineering Professors Council interim report on output standards • UK Quality Code Part A.1 (2011)

Programme Structures and Requirements: Levels, Modules and Credits						
Stage 1						
Module Title	Credits	Level	Module Code	Core/Option	Condonable	Prerequisites
Design and Build	10	4	CE1002	Core		
Process and Product Design	10	4	CE1004	Core		
Health, Safety and the Environment	10	4	CE1007	Core		
Introduction to Transfer Processes	20	4	CE1009	Core	N	Y
Industrial Chemistry	10	4	CE1010	Core	Y	N
Organic Chemistry for Engineers	10	4	CE1102	Core	N	Y
Physical Chemistry for Engineers	10	4	CE1103	Core		
States of Matter	10	4	CH1105	Core		
Inorganic Chemistry I	10	4	CH1111	Core		
Choose 20 credits from the following options						
Basic Mathematics	10	4	AM10BM	Option		
Fundamental Mathematics	10	4	AM11FM	Option		
Transition Mathematics for Engineers	10	4	SE11EM	Option		
Mathematics for First Year Engineers	10	4	SE12EM	Option		
TOTAL	120					

Programme Structures and Requirements: Levels, Modules and Credits						
Stage 2						
Module Title	Credits	Level	Module Code	Core/Option	Condonable	Prerequisites
Process Design	20	5	CE2002	Core		
Transfer Processes	10	5	CE2004	Core		
Process Control and Instrumentation	10	5	CE2009	Core		
Separation Processes	10	5	CE2103	Core		
Process Simulation	10	5	CE2105	Core		
Reaction Kinetics	10	5	CE2106	Core		
Chemical Engineering Laboratory	10	5	CE2110	Core		
Engineering Materials 1	10	5	ME2019	Core		
Innovation Management	10	5	ME2033	Core	N	Y
Energy Supply	10	5	ME2042	Core		
Introduction to Business Management	10	4	SE1500	Core		
TOTAL	120					

Programme Structures and Requirements: Levels, Modules and Credits						
Stage 3						
Module Title	Credits	Level	Module Code	Core/Option	Condonable	Prerequisites
Choose 120 credits from the following options						
EAS Study Placement Year	120	P	SEP001	Option		
EAS Industrial Placement Year	120	P	SEP002	Option		
TOTAL	120					

Programme Structures and Requirements: Levels, Modules and Credits						
Stage F						
Module Title	Credits	Level	Module Code	Core/Option	Condonable	Prerequisites
Process Economics and Loss Prevention	10	6	CE3001	Core		
Advanced Process Design	30	6	CE3003	Core		
Sustainability Project	10	6	CE3012	Core		
Particle Processing	10	6	CE3013	Core		
Reaction Engineering	10	6	CE3102	Core		
Process and Pollution Control	10	6	CE3104	Core		
Advanced Separation Processes	10	6	CE3105	Core		
Advanced Transfer Processes	10	6	CE3106	Core		
Catalysis	10	6	CH3010	Core	Y	Y
Choose 10 credits from the following options						
Advances in Biomaterials Science	10	6	CH3102	Option		
Energy Efficiency	10	6	ME3023	Option	Y	Y
TOTAL	120					

Programme Outcomes, Learning and Teaching and Assessment Strategies

Knowledge and Understanding

On successful completion of their programme students, are expected to have knowledge and understanding of:		Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	Assessment Methods
1	The basic mathematics, science and technology underpinning Chemical Engineering	Lectures, tutorial classes, practical laboratory work, independent and group project work, independent study For sandwich students, An agreed programme of professional experience and training	Examinations, written continuous assessment [in the form of laboratory and project reports, essays, solved problems, and dissertations], supervisor assessed project work, oral examinations and presentations. For sandwich students, written reports by the student, the academic and industrial supervisors reports may also be considered.
2	The fundamental concepts and principles of Chemical Engineering		
3	The design and construction techniques applicable to Chemical Engineering		
4	Basic business and management principles		
5	Sandwich students only - the relevance of the programme's discipline-specific and generic content to the world of work		

Intellectual Skills		
On successful completion of their programme students, are expected to have knowledge and understanding of:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
	Learning and Teaching Methods	Assessment Methods
1 Analyse the requirements of chemical engineering, problems and select the appropriate technologies to solve the problems.	Lectures, tutorial classes, practical laboratory work, independent and group project work, independent study	Examinations, written continuous assessment [in the form of laboratory and project reports, essays, solved problems, and dissertations], supervisor assessed project work, oral examinations and presentations.
2 Evaluate and integrate information from a wide variety of sources.		
3 Plan, conduct, evaluate and report on a programme of work leading to an end product or process which utilises chemical engineering.		
4 Design a solution to a chemical engineering problem subject to various constraints, evaluate the design and make improvements.		

Professional Skills		
On successful completion of their programme students, are expected to have knowledge and understanding of:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
	Learning and Teaching Methods	Assessment Methods
1 Plan and carry out a series of experiments	Lectures, tutorial classes, practical work [both assessed and unassessed] For the sandwich students, an agreed programme of professional experience and training	Examinations, continuous assessment [in the form of laboratory and project reports, essays, solved problems, and dissertations], supervisor assessed project work, oral examinations and presentations. For the sandwich students, written reports by the student, the academic and industrial supervisors reports may also be considered.
2 Carry out a competent design of process equipment		
3 Prepare technical reports and presentations		
4 Use appropriate software packages		
5 Complete industrial training [Sandwich Students only]		

Transferable Skills			
	On successful completion of their programme students, are expected to have knowledge and understanding of:	Learning, Teaching and Assessment Strategies to enable outcomes to be achieved and demonstrated	
		Learning and Teaching Methods	
		Assessment Methods	
1	The ability to communicate effectively in writing, orally and through technical diagrams.	Skills are developed through practical work, group and personal tutorial classes, practical work and projects and the placement option.	Examinations, continuous assessment [in the form of laboratory and project reports, essays, solved problems, and dissertations], supervisor assessed project work, oral examinations and presentations. Many of these skills are assessed indirectly via other learning outcomes.
2	Team working		
3	Problem solving skills		
4	ICT skills		
5	Time management skills		
6	Independent learning		
7	Study skills		

Entry Requirements	<p>1.1 The general entry requirements of the School/programme are GCSEs English and Mathematics at Grade C; 300/320 points [BBB/ABB] at A Level</p> <p>1.2 In addition to satisfying the general entry requirements, candidates must satisfy any specific entry requirements for the programme, as approved by the School Learning and Teaching Committee. This includes Chemistry A Level or equivalent and preferably Mathematics. Two AS level passes may be substituted for one other A Level subject. Other subjects and other qualifications of equivalent standing, as approved by School Learning and Teaching Committee, may be acceptable alternatives.</p> <p>1.3 Students already reading another degree programme at Aston University may be allowed to transfer to this programme, with the agreement of the Schools Associate Dean of Undergraduate Programmes.</p>
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Programme Regulations	<p>1 Attendance requirements</p> <p>1.1 Students are normally required to attend the University for three stages or four stages, with an approved placement, over a period of three or four consecutive academic years, with the placement as the third stage. Each stage at Aston University consists of three terms.</p> <p>1.2 In order to qualify for the award of the degree a student must have attended the required proportion of tutorials, seminars, practical classes and lectures specified by the Schools Executive Dean. The Programme Handbook provides details of procedures for monitoring attendance and dealing with poor attendance.</p> <p>1.3 In the case of repeated unexcused absence over a period of two weeks or more, disciplinary proceedings may be instituted in the form of an official warning letter requiring attendance. If there is no response to this letter or satisfactory attendance is not resumed, the Executive Dean may require the student to withdraw from the programme.</p> <p>1.4 Students are required to complete and pass 120 credits in each year of study. In the first year students will be streamed onto certain Maths modules, according to knowledge and aptitude.</p> <p>2 Industrial/Professional Training</p> <p>Each student is required to submit satisfactory reports of the work carried out during the placement stage and a poster presentation. This work will be assessed as one module, worth 120 credits at level P. The placement is graded and does contribute to the classification of the degree awarded. Satisfactory completion of the assessment requirements is detailed in the CEAC Industrial Placement Handbook.</p> <p>3 Exemptions from [Professional Qualification] examinations</p> <p>In order to obtain exemption from the Institution of Chemical Engineers the following conditions must be satisfied. An overall satisfactory standard must be achieved in the Part II of module CE3003 and at least a third class honours degree.</p>
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General Regulations (<http://www1.aston.ac.uk/registry/for-staff/regsandpolicies/general-regulations/>) and the Regulations for the programme (above) take precedence over other information sources such as student handbooks if there is a conflict. If there is a conflict between General Regulations and Programme Regulations then General Regulations take precedence unless an exemption has been approved.

This specification provides a concise summary of the main features of the programme and the threshold learning outcomes that a student might normally be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. **The individual modules included in the programme may differ from those included in this programme specification as our programmes are subject to continuous review.** Information on admissions requirements and career opportunities is available in the relevant prospectus. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in the appropriate module guides and programme handbook(s) which are available to students on enrolment.