

ASTON UNIVERSITY PROGRAMME SPECIFICATION

Programme Title	Applied Chemistry
UCAS/JACS Code	F110
School/Subject Area	School of Engineering and Applied Science Chemical Engineering and Applied Chemistry
Final Award	BSc
Interim Awards	Certificate of Higher Education Diploma of Higher Education
Mode(s) of Study	Full time Sandwich
Normal Length of Programme	3 years [full time] 4 years [sandwich]
Total Credits	360 credits [full time] 480 credits [Sandwich]
Programme Accredited By	N/A
Dates Programme Specification Written and Revised	May 2005, July 2006, June 2007, May 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 basic principles of chemistry. • To provide students with appropriately structured curricula, combining teaching in theoretical and knowledge-based principles with practical skills training. • To produce graduate chemists with additional skills and knowledge of chemical engineering and management and with relevance to chemistry, 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"> • Requirements for accreditation of undergraduate programmes by the Royal Society of Chemistry • UK Quality Code Part A.1 (2011) • QAA subject benchmark for Chemistry

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		
Professional Skills for Placements and Employment	10	4	CE1008	Core		
Introduction to Transfer Processes	20	4	CE1009	Core	N	Y
Industrial Chemistry	10	4	CE1010	Core	N	Y
Organic Chemistry I	10	4	CH1102	Core		
Physical Chemistry I	10	4	CH1103	Core		
Molecular Transformations	10	4	CH1104	Core		
States of Matter	10	4	CH1105	Core		
Introduction to Biological Chemistry	10	4	CH1106	Core		
Inorganic Chemistry I	10	4	CH1111	Core		
Choose 0 credits from the following options						
Basic Mathematics	10	4	AM10BM	Option		
Transition Mathematics for Engineers	10	4	SE11EM	Option		
TOTAL	120					

Programme Structures and Requirements: Levels, Modules and Credits						
Stage 2						
Module Title	Credits	Level	Module Code	Core/Option	Condonable	Prerequisites
Reaction Kinetics	10	5	CE2106	Core		
Chemical Analysis	10	5	CH2101	Core		
Organic Chemistry II	20	5	CH2102	Core		
Biological Chemistry	10	5	CH2104	Core		
Physical Chemistry II	20	5	CH2107	Core		
Polymer I	10	5	CH2123	Core		
Polymer II	10	5	CH2125	Core		
Inorganic Chemistry II	10	5	CH2126	Core		
Electrochemistry and Aqueous Systems	10	5	CH2127	Core	N	Y
Introduction to Business Management	10	4	SE1500	Core		
TOTAL	120					

Programme Structures and Requirements: Levels, Modules and Credits						
Stage 3 P						
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
Physical Chemistry III	20	6	CH3008	Core		
Catalysis	10	6	CH3010	Core	Y	Y
Research Project	30	6	CH3011	Core		
Organic Chemistry III	10	6	CH3103	Core		
Polymer III	20	6	CH3108	Core		
Inorganic Chemistry III	10	6	CH3115	Core		
Choose 20 credits from the following options						
Particle Processing	10	6	CE3013	Option		
Advances in Biomaterials Science	10	6	CH3102	Option		
Advances in Lipid Chemistry	10	6	CH3109	Option	Y	Y
Advanced NMR Spectroscopy	10	6	CH3114	Option	Y	Y
Innovation Management	10	5	ME2033	Option		
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	Basic mathematics and chemistry	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 will also be considered.
2	Technological and engineering applications of chemistry		
3	Laboratory techniques applicable to chemistry including the ability to design and carry out experimental work as part of an open-ended research project		
4	Business and Management techniques		
5	Fundamental principles of chemistry		
6	Sandwich students - 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 problems in chemistry and chemical industry & select appropriate methods to solve such 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 & report on a programme of work leading to an end product or process which utilises a knowledge and understanding of chemistry		
4	Integrate knowledge of chemical processes and products with principles of business management.		
5	Handle an open-ended project which stretches and develops the student's problem-solving and creative thinking capacities		

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 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 sandwich students, written reports by the student, the academic and industrial supervisors reports may also be considered
2	Carry out a competent research project		
3	Prepare technical reports and presentations		
4	Use appropriate software packages		

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 or scientific 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 skills to facilitate professional development		
7	Study skills		

Entry Requirements	<ol style="list-style-type: none"> 1. The general entry requirements of the School/programme are GCEs English and Mathematics at Grade C 2. 320/340 points [ABB/AAB] at A Level, to include Chemistry A Level at grade A. 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.
Programme Regulations	<p>Attendance requirements</p> <ol style="list-style-type: none"> 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 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. 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>Other requirements</p> <ol style="list-style-type: none"> 1. 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. 2. Students will be expected to demonstrate the ability to work safely, independently and competently in laboratories in order to continue on this programme. <p>Industrial Placement</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. The placement is graded and does contribute to the classification of the degree awarded. Satisfactory completion of the assessment requirements are given in the CEAC Industrial Placement Handbook.</p>
<p>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.</p>	

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.