

PROGRAMME SPECIFICATION

SCIENCE AND ENGINEERING **FHEQ 3**
University Foundation in Science and Engineering

Version	Current Version	1.20	June 2019
	Prior Version/s	1.19	November 2018

PATHWAY/s			
Pathway Type	Undergraduate		
Pathway Areas	Science and Engineering		
Pathways/s	Engineering	Computer Science	Physics, Astronomy and Mathematics
University Pathway Code/s	AASE2F; AEM2F; ME2F; ATM2F; ATP2F; ATM2F; EEE2F, DT2F.	CS2F; IT2F.	MF2M2F; PA2F.
College MAZE Code/s	S601-12	S613-17	S618-21
Pathway Provision	College: FHEQ Level/s		3 and 4
	University: FHEQ Level/s		5 and 6
Awarding University	University of Hertfordshire (UH)		
Awards by Pathway	Degree awards		FHEQ Award Level
<i>Engineering and Technology (EnT)</i>	BEng (Hons) Aerospace Engineering		6
	BEng (Hons) Aerospace Engineering with Space Technology		6
	BEng (Hons) Aerospace Systems Engineering		6
	BEng (Hons) Aerospace Systems Engineering with Pilot Studies		6
	BEng (Hons) Automotive Engineering		6
	BEng (Hons) Automotive Engineering with Motorsport		6
	BEng (Hons) Civil Engineering		6
	BEng (Hons) Mechanical Engineering		6
	BEng (Hons) Mechanical Engineering and Mechatronics		6
	BEng (Hons) Electrical and Electronic Engineering		6
	BEng (Hons) Electronic Engineering and Mechatronics		6
	BSc (Hons) Computer Technology and Networks		6
	BSc (Hons) Aerospace Technology with Management		6
	BSc (Hons) Aerospace Technology with Pilot Studies		6
	BSc (Hons) Automotive Technology with Management		6
BSc (Hons) Motorsport Technology		6	
<i>Computer Science (CS)</i>	BSc (Hons) Computer Science		6
	BSc (Hons) Computer Science (Artificial Intelligence)		6
	BSc (Hons) Computer Science (Networks)		6
	BSc (Hons) Computer Science (Software Engineering)		6
	BSc (Hons) Information Technology		6
<i>Physics, Astronomy and Mathematics (PAM)</i>	BSc (Hons) Mathematics		6
	BSc (Hons) Financial Mathematics		6
	BSc (Hons) Physics		6
	BSc (Hons) Astrophysics		6
Subject Benchmark Statements	QAA: Engineering 1084 02/2015; Computing 1427 02/2016; MSOR 1030 05/2015		
College Status	Associate College		
College Location	College Lane Campus, Hatfield (part of University estates provision)		

University Location	College Lane Campus, Hatfield
University Faculty	Computer Science (CS); Engineering and Technology (EnT); Physics, Astronomy and Mathematics (PAM)
University School/s	Engineering and Computer Science Physics, Astronomy and Mathematics
Rationale	<p>The partnership between the College and University of Hertfordshire facilitates the acquisition of an undergraduate degree by international students who, because of their previous educational experience, are not normally able to gain direct access to the University's degree courses. The pathway has therefore been developed to satisfy important pedagogical issues:</p> <ol style="list-style-type: none"> 1. To ensure that international students have a dedicated period of time in a familial and safe setting, to adjust to and acquire the skills to prepare for further studies within a western learning environment. 2. To satisfy the University's quality protocols, which in turn are directed by the QAA Subject Benchmark requirements, for articulation purposes. 3. Facilitate access to a pathway leading to a University degree award. 4. Protect the entry tariff of the University to its degree courses and ensure that the University does not need to lower its entry tariff in order to increase its international student population. 5. Widen access and participation in higher education in line with the University's internationalisation agenda. 6. Commit to the provision of best practice customer service and student experience for international students and thus add value to the University's award winning student lifestyle. 7. Support the integrity of the University's QAA commitment by adopting and adapting the University's quality regime to form the basis of a robust, quality driven academic provision and administrative systems and processes. 8. Facilitate effective and efficient, low risk public/private partnership in line with the University's strategic research mission. 9. Enhance the global reach of the University into previously untapped markets and market segments. 10. Add resource, human and financial, to the University's marketing process. 11. Facilitate access to a global recruitment process. 12. Assist in the diversification of the student body. 13. Make available the benefits derived from access to Navitas' global reach and corporate marketing arm. 14. Provide the University with third stream revenue via income flow from royalty payments each trimester and the ongoing pipeline revenue derived from fees paid by those students who progress to the University to complete their prescribed degree.
Educational Aims	<p>The programme, First Year Degree in Science and Engineering, has been devised in accordance with Navitas UK general educational aims along with those formulated for the College, and the nominated outcomes desired by the University of Hertfordshire Schools of Computer Science, Engineering & Technology, and Physics, Astronomy & Mathematics, to impart a high quality of education in the disciplines required.</p> <p>The educational aims of the programme are to:</p> <ol style="list-style-type: none"> 1. Prepare students, who would not normally be considered qualified, to an appropriate standard for entry into the HIC/University of Hertfordshire integrated 1st Year undergraduate at FHEQ Level 4. 2. To endow each individual with an educational pathway that augments opportunities for professional employment and development in the business sector at both a national and international level. 3. Develop in students a fundamental knowledge and understanding that can demonstrate an understanding of engineering and science to support their transfer into FHEQ Level 4 of the prescribed degree schemes at the University of Hertfordshire. 4. Develop in students an appreciation and desire to learn based on competent intellectual and practical skills, building to a set of transferable skills that will support them in all aspects of their onward academic studies/careers and assist informed decision making. 5. Ensure that students have attained the prescribed level of inter-disciplinary language

	<p>competence described as Level B2 'Independent User' by the Council of Europe, see Common European Framework of Reference for languages: Learning, teaching assessment 2001, Council of Europe, CUP, Cambridge, p. 24, Table 1. Common Reference Levels: global scale.</p> <p>6. Ensure that graduates have attained the prescribed level of inter-disciplinary language competence to a minimum pass mark of 50% in the ACL accredited/Navitas English module Interactive Learning Skills and Communication, and therein a minimum 6.0 IELTS equivalent..</p>	
PROGRAMME		
Title	University Foundation in Science and Engineering	
FHEQ	3	
Credit Points	Engineering/ PAM Pathway: 120	
	Computer Science Pathway: 120	
Duration of Study	Two (2) semesters	
Weeks of Study	24 weeks – refer to the timetable and assessments at HIC	
Mode of Study	Full-time	
Mode of Delivery	Face to Face	
Notional Hours	Engineering/PAM Pathway: 1200	
	Computer Science Pathway: 1200	
Contact Hours	Engineering/PAM Pathway: 336	
	Computer Science Pathway: 336	
Self-directed Study Hours	Engineering/PAM Pathway: 864	
	Computer Science Pathway: 864	
Delivery Model	Standard Delivery Model (SDM)	
Language of Delivery	Delivery	English
	Assessment	English
	Council of Europe	Common language reference level B2 Independent User
Intended Learning Outcomes	<p>Generic: All modules have a set of Generic Learning Outcomes (LOs) attached to them, see relevant Definitive Module Documents (DMDs). These provide a basic set of core transferable skills that can be employed as a basis to further study and life-long learning. They are delivered using an interdisciplinary and progressive approach. The Generic LOs for the programme are tabled below:</p>	
	Key knowledge will be demonstrated by:	
	Key skills will be demonstrated by the ability to:	
	Personal organisation and time-management skills to achieve research goals and maintain solid performance levels.	Meet converging assessment deadlines – based on punctuality and organisation with reference to class, group and individual sessions within a dynamic and flexible learning environment with variable contact hours and forms of delivery.
	Understanding of the importance of attaining in-depth knowledge of terminology as used in a given topic area, as a basis to further study.	Communicate clearly using appropriate nomenclature to enhance meaning in all oral and written assessments with no recourse to collusion or plagiarism.
	Understanding, knowledge and application of appropriate and effective methods of communication to meet formal assessment measures.	Present clearly, coherently and logically in a variety of oral and written formats using a variety of appropriate qualitative and quantitative tools and evidence bases.
	Understanding and knowledge as to the development of the industry and/or scholarship in relation to a given topic under study.	Demonstrate an understanding of the current themes of a given topic, the academic and practical foundation on which they are based – demonstrated by a lack of plagiarism and need for collusion in both individual and group work.
	Understanding of the rules applying to plagiarism and collusion.	Collate, summarise, reason and debate/argue effectively on a given topic with appropriate reference to another's work or ideas/concepts.
	Ability to work as an individual, in a small team and in a larger group to effect data collation, discussion and presentation of evidence.	Meet and succeed in each of the varied assessments presented.
<p>Specific: Module-based LOs are described as Specific LOs and combine to make up the Intended LOs of the</p>		

programme/stage of study. Specific LOs for a module are fully expressed in the relevant DMD and Introductory Module Guide (IMG).

Intended:

Each programme/stage of study incorporates a set of Intended LOs to define the wider academic-based knowledge and skills acquisition. These key areas are described and tabled below:

A Knowledge and Understanding			
	To obtain a knowledge and understanding of:	Teaching/learning methods and strategies:	Assessment methods
1	The relationship the subject of engineering has to industry, business, human development and lifestyles and its applications to the contemporary world.	Acquisition of Intended LOs via a combination of small group lectures (listening, writing and reading); small group-based tutorial labs/coursework (oral, reading, listening and written presentation); and individual coursework (oral, and written presentation) and summative examination (reading and writing). Additional support is provided through the provision of small peer-led tutorial group work and of individual tutorial support; College module-specific subject specialists where appropriate; guest speakers (industry/topic specific); monitoring and appraisal by College academic management. Ensuring all students acquire grounding in University of Hertfordshire and associated end-user IT platforms for academic study. The opportunity to interface regularly with noted platforms in College, University of Hertfordshire library and independent environments to develop an understanding of the implications of the use of different e-learning for research. The Programme Specification, DMDs, Module Introductory Guide, reading lists, lecturers and notes, and assessment regimes are available via the University (and where applicable the College) e-learning portal for queries to be met. <i>Students are encouraged throughout the stage of study to undertake independent study both to supplement and consolidate what is being taught/learned and to broaden their individual knowledge and understanding of the subject.</i> <i>Feedback is given to all students on all work produced and, where appropriate, confirmed in individual appraisal events associated with modules. Interviews are made with the tutor and/or the College academic services to evaluate and discuss any emerging learning issues and therein students options.</i>	Acquisition of A1-A12 via a combination of small group lectures, coursework (including some project work), summative unseen examination, laboratory work and/or practicals and guided self-study. Additional support is provided through the provision tutorial groups by UH and/or the Tutorial Drop-In Centre, as well as a dedicated programme tutor provided by HIC. Students are encouraged throughout the programme to undertake independent study in a bid to complement, enhance and consolidate what is being taught/learned and to broaden individual knowledge and understanding of the subject. Feedback is given to all students on all work produced and teaching staff exercise a range of educational strategies appropriate to a given module. For Level 3 a focus towards more didactic approaches, notably in the achievement of the outcomes A2, A4, A5, A7 and A9. Assessment: Testing of knowledge and understanding of A1 – A12 is normally through a combination of unseen coursework, project work and unseen examination. Furthermore, elements of A1 to A12 are determined via in-course assessments including phase tests, laboratory and technical reports, design exercises, written assignments, project reports, workbooks, individual presentations and group presentations.
2	The principles underlying the use of materials in engineering applications along with their production, use and control.		
3	The fundamentals of programming and how it is used and contributes to the engineering and computing process and solves engineering and computing problems.		
4	The context and future development of engineering processes at personal, commercial, national and global levels.		
5	The theories and key concepts of physical science in an interdisciplinary context.		
6	How engineering contributes to the wider range of social and political issues.		
7	Physical laws and their relevance to engineering principles.		
8	How economic and technological developments effect the environment and their management.		
9	The application of mathematic techniques to the engineering and logical decision making process.		
10	The purpose and processes of object-orientated programming and an introductory understanding of Java.		
11	The application of ICT as a fundamental tool for extracting, sourcing, describing and presenting data and information in a variety of relevant forms, and distributing data and information via a range of channels and formats.		

	12	The techniques and forms of effective and clear communication in a variety of academic and professional settings.		
	B	Intellectual Skills		
		Intellectual skills - Able to :	Teaching/learning methods and strategies	Assessment methods
	1	Make full use of library and IT search (catalogue and bibliographic) resources.	Intellectual skills are developed throughout the programme by the methods and strategies as summarised in Section A. The basics of analysis, problem solving and modelling skills are developed via tutorials, laboratory practice and in-course assessment as a platform to further emphasis in Levels 5 and 6 of a nominated undergraduate degree. Design and IT skills are enhanced via project work, design exercises and case studies. The student is always encouraged to further develop intellectual skills by independent study. Ensuring all students acquire grounding in University of Hertfordshire and associated end-user IT platforms for academic study. The opportunity to interface regularly with noted platforms in College, University of Hertfordshire library and independent environments to develop an understanding of the implications of the use of different e-learning for research. Acquisition of B.2 to B.5 via a combination of small group lectures (listening, writing and reading); small group-based tutorial labs/coursework (oral, reading, listening and written presentation); and individual coursework (oral, and written presentation) and summative examination (reading and writing). Additional support is provided through the provision of small peer-led tutorial group work and of individual tutorial support; College module-specific subject specialists where appropriate; guest speakers (industry/topic specific); monitoring and appraisal by College academic management.	Feedback is given to all students on all work produced and teaching staff exercise a range of educational strategies appropriate to a given module. Assessment: Written assignments and in-course assessments, computer-based coursework, project reports and presentations. Analysis and problem solving skills are assessed through unseen summative examination, laboratory reports and coursework. Design and IT skills are assessed via coursework and in-course exercises, presentations as well as portfolios and project reports.
	2	Apply basic research techniques to sourcing and selecting appropriate academic data and literature.		
	3	Integrate oral, written, non-verbal and diagrammatic skills to effect clear communication.		
	4	Ability to analyse data and various modes of information using appropriate numerical techniques.		
	5	Ability to begin to evaluate and start to apply, reasoned thinking and supportive evidence collation to conflicting sets of information and academic opinion.		
	C	Practical Skills		
		Practical skills – Able to:	Teaching/learning methods and strategies	Assessment methods
	1	Transfer and utilise key skills at a higher level of study.	Practical skills are developed throughout the programme by the methods and strategies set out in Sections A and B. Through a combination of small group lectures and small group-based tutorial supported by an assessment framework that requires a high level of self-directed study allows	Integrated themes used across the continuous assessment framework for the programme to test robust capability skills in a number of environments. A combination of summative (closed-book) examinations and summative coursework along with written assignments, portfolios and in-course
	2	Employ analytical skills and methodologies as a basis to further study.		
	3	Ability to begin to engage critically with regard to the underlying challenges facing the		

		environment and engineering-based industries.	candidates to foster a range of analytical skills to support further study. This is aided by inclusion of the module ILS001 in the programme.	assessments/tests, computer-based coursework and tests, project reports, presentations and practical tests.
	4	Develop the knowledge and skills to carry out basic laboratory manipulations with reference to University of Hertfordshire protocols and safety regulations.	<p>Application of the central commercial, economic, environmental, sustainability and technological themes throughout all core modules of the programme via examples and topics for assessment regimes.</p> <p>C1 – C4 developed via laboratory work and associated written reports, coursework and tutorial work.</p> <p>Feedback is given to all students on all work produced and teaching staff exercise a range of educational strategies appropriate to a given module.</p>	<p>Practical skills are assessed via laboratory reports, coursework assignments, presentation and project reports.</p> <p>Practical skill, C1 – C4 are addressed through lectures, tutorials, practicals and independent study. These skills are assessed by coursework and indirectly through unseen exams.</p>
	D	Transferable Skills		
		Transferable skills – Able to:	Teaching/learning methods and strategies	Assessment methods
	1	Select, read, digest, summarise and synthesise information material in a variety of forms, both qualitative and quantitative (text, numerical data and diagrammatic) and in an appropriate manner to identify and determine key facts/themes and relevancy.	<p>Transferable skills are developed via the programme by the methods and strategies developed in Sections A, B and C.</p> <p>D1 – D5 – developed via lectures, tutorials, group and individual coursework, reports, oral presentations and project reports, use of IT tools in preparation of project reports and laboratory reports.</p>	A combination of summative (closed-book) examinations and summative coursework along with written assignments and in-course assessments, computer-based coursework, project reports, portfolios and presentations. Indicating an ability to effectively manage a complex and flexible timetable, combining a variety of delivery and assessment modes, some of which are conflicting in submission and style (oral/written and individual/small group, to demonstrate effective organisation, self-reliance and time-management skills.
	2	Use and clearly communicate discursive, numerical, statistical and diagrammatic ideas, concepts, results and conclusions using appropriate technical and non-technical language and language style, structure and form.	<p>D5 – encouraged throughout the programme as part of the further generic educational aims of the nominated degree programmes.</p> <p>Embedded in all aspects of delivery and assessment structures is the need to disseminate information presented in a variety of forms and modalities.</p>	<p>Assessment:</p> <p>D1 - D5 are assessed via coursework, technical reports, oral presentations, group project work, individual project work and summative unseen examination.</p>
	3	Application of basic research and referencing techniques to all aspects of study, information collation, information presentation and formulation of academic opinion.	<p>Using a combination of all delivery and assessment styles (oral and written, group and individual) used within the programme to demonstrate competence in presentation, reports, long and short essays (to enhance summarisation techniques and limit collusion and plagiarism), timed-assignments (indicating knowledge, organisation, time management and clear communication ability), of the following: design a persuasive</p>	
	4	Embedding the importance of self-study and reliance. This involves cultivating and developing a responsibility within each student to take cognizance for their own learning, initiative, effective time-management and self-discipline within the academic and professional environments.		

	5	Students will also begin to develop a very good conceptual understanding and evaluation of the main aspects of engineering that can serve them well in their future studies and careers.	message from the audience's perspective; demonstrate effective presentation delivery skills in a variety of situations; leave effective voice-mail messages; write persuasive E-mails, memos letters; and write factual essays and reports in plain English. These skills are reflective of in-context reading, writing, oral and speaking skills and enhanced language acquisition.	
Assessment Regulations	<p><u>Summary:</u></p> <p>The programme is compliant with the generic assessment regulations of Navitas UK and the College policies and regulations; see CPR QS9.</p> <p>Each module within the programme/stage of study has an associated Module Outline that may be broadened into a Definitive Module Document (DMD) either of which will be provided to students at the beginning of their studies. These documents offer generic information on the Aims and Specific LOs of the subject/s under study, basic references and the attendance and notional contact requirements. They also include topics/subject areas of study and outlines of the assessment events.</p> <p>Each module has an associated textbook(s), as prescribed by the DMDs and a specifically developed Introductory Module Guide or Hello Doc (IMD), which includes the types of assessment activities employed, teaching methods, resources, assessment criteria and expectations, contact details of the tutor(s), referencing (if applicable) and submission/completion requirements. Contained is also a lecture-by-lecture schedule of subjects students can be expected to cover over the teaching period. This acts as a useful reference for study and revision purposes. All assessments are designed to reflect and measure both an individual's and a cohort's achievement against the Specific LOs of the module and Intended LOs of the programme.</p> <p>In-course written, reading, listening and oral assessments are built into all modules through general interaction between tutors and students, student peer review and small group tutorials or individual tutorials/appraisals. Modes of assessment include essay/report writing, oral presentation (group or individual, and poster), portfolio, e-based, in-class tests or homework exercises.</p> <p>All written assessments must follow certain criteria in style and submission as noted in the relevant DMDs, Introductory Module Guides and Student Handbook. These forms of assessment are considered fundamental to a student's ability to communicate ideas and evidence with clarity, relevance and logic in a planned and organised manner. Plain writing style, syntax and grammar are core skills that can be enhanced to support the maturing of individual students' composition and thus academic and transferable proficiency.</p> <p>Oral presentations, whether part of formal or informal assessment practice, are encouraged within all modules as they promote, among others, transferable skills and can identify those students who may be plagiarising material. It is advised, however, that they should not make up more than 60% of the final module mark unless as part of the learning rational. Oral group presentations should ideally contain no more than five (5) students, unless specific reasoning is applied. Each member, irrespective of their role, should be awarded the same mark unless where obvious differentiation arises, for management of this process see CPR QS9. This form of expression should not be allocated more than fifty (50) minutes per group, with less than a 30% weighting. Time limits must be upheld by tutors so as to ensure all students have the same opportunity to perform. Furthermore, tutors ought to notify students as to the materials available to them before preparation takes place.</p> <p>Final summative examination normally adheres to closed-book, invigilated, timed conditions and takes place during allocated exam periods of a programme. It represents a more abstract measure of a student's achievement as a consequence of the Specific LOs associated with a module. It is utilised as a key measure of quality in teaching standards and provides a basis to aspects of delivery and environment which takes place at the conclusion of a semester by College academic services, see CPR QS9. Marks indicated in the relevant DMDs cannot be referred. Only in extenuating circumstances,</p>			

sickness, personal tragedy or in the possibility of a clerical error, will deferral take place, see CPR QS9.

Formal assessment modalities (coursework and examination, respectively), combine to produce the following weightings applied to any given module. Successful completion of a module is based on attaining the required overall pass grade prescribed. The assessment mode for a given module is based on the desired Specific LOs, their expressions can be found in the relevant DMD. Students must be briefed at the beginning of each module as to which weightings are in use. They should also be clearly advised as to the marking criteria and, hence, the achievement requirements for each grade cluster.

Where a student has a special need or disability, appropriate steps must be taken by the College, academic staff and/or internal/external invigilators to ensure that the need is recognised and a justified outcome identified, see CPR QS9.

Demonstration of achievement:

Students must pass all modules at the prescribed grade in order to progress to the next stage of their educational continuum, see Progression Criteria, below.

Categories of performance and grading levels:

A (High Distinction: 80% to 100%) – Distinctive level of knowledge, skill and understanding that demonstrates an authoritative grasp of the concepts and principles and ability to communicate them in relation to the assessment event without plagiarism or collusion. Indications of originality in application of ideas, graphical representations, personal insights reflecting depth and confidence of understanding of issues raised in the assessment event.

B (Distinction: 70% to 79%) – Level of competence demonstrating a coherent grasp of knowledge, skill and understanding of the assessment and ability to communicate them effectively without plagiarism or collusion. Displays originality in interpreting concepts and principles. The work uses graphs and tables to illustrate answers where relevant. Ideas and conclusions are expressed clearly. Many aspects of the student's application and result can be commended.

C (Credit: 60% to 69%) – Level of competence shows an acceptable knowledge, skill and understanding sufficient to indicate that the student is able to make further progress. The outcome shows satisfactorily understanding and performance of the requirements of the assessment tasks without plagiarism or collusion. Demonstrates clear expression of ideas, draws recognisable and relevant conclusions.

D (Pass: 50% to 59%) – Evidence of basic competence to meet requirements of the assessment task and event without plagiarism or collusion. Evidence of basic acquaintance with relevant source material. Limited attempt to organise and communicate the response. Some attempt to draw relevant conclusions.

F (Fail: less than 50%) – The student's application and result shows that the level of competence being sought has not yet been achieved. The assessed work shows a less than acceptable grasp of knowledge, skill and understanding of the requirements and communication of the assessment event and associated tasks.

Generic marking criteria:

Response – the response must address all parts of the question, that is not just a part or parts of the question. A response that is not specifically tailored to the needs of the question will not be accepted.

Structure – the student has identified the main issues of the question and attached the appropriate emphasis to them; has stated their agreement accurately and in some detail and has utilised the supporting data.

Context – the student has displayed knowledge of the basic subject matter under assessment, has included only relevant material where required, has provided a written agreement or mathematical/numerical/diagrammatic/modelled statement and, in doing so, has addressed all aspects of it in reaching a conclusion and has provided a clear understanding of a question in reaching a conclusion.

Presentation – due credit, specified as a percentage of the marking criteria, will be given for a

	<p>succinct and fluent writing style.</p> <p>Illegible material will not be given due credit, specified as a percentage of the marking criteria.</p> <p>Penalty – a student will be penalised if they have not tackled each issue of a question separately, stating their agreement and or rationalised progression and then applying this to the facts. Students will be penalised for not providing evidence of academically based reasoning in an answer.</p> <p>Sources – the student should provide accurate referencing; it is essential that a student does not plagiarise from any source, see CPR QS9.</p>																																																																																																																			
Moderation	See CPR QS9 – Summary: 10% sample of all assessment components by a subject specialist. External Examiner where necessary.																																																																																																																			
Progression Criteria	<p>Summary: Students must successfully achieve the assessment criteria specified in each relevant DMD to their pathway, as follows, for:</p> <ul style="list-style-type: none"> Engineering/PAM Pathway require 120 credit points for successful progression to the Integrated 1st Year. Computer Science Pathway require 120 credit points for successful progression to the Integrated 1st Year. 																																																																																																																			
Failure to Progress	Summary: a student may not re-sit or repeat a module on more than two (2) occasions, failure of the module may require an assessment re-sit or that a student repeats the entire module at full cost. Failure of a student to complete a module on the re-take will result in referral to the College Learning and Teaching Board for a student management decision.																																																																																																																			
Associated Documentation	<p>All University prescribed modules form the basis of the curriculum; See Appendix 4, for University Module Outlines.</p> <p>Definitive Module Documents (DMDs) as follows: DMD/PHY101; DMD/PHY102; DMD/BUS104; DMD/BUS105; DMD/BUS106; DMD/BUS107; DMD/COM101; DMD/ILS001; DMD/MAC101; DMD/MTH002.</p> <p>Introductory Module Guides (IMGs) as follows: IMGs are available on the HIC Student Portal/Moodle</p> <p>Associated teaching aids for a module as required</p> <p>Associated Student Handbook is available on the HIC Student Portal/Moodle</p> <p>College Policies and Regulations (CPRs) are available on the HIC Student Portal</p>																																																																																																																			
Human Resource	<p>Sessional academics (tutors) – with appropriate qualifications, experience and abilities.</p> <p>Guest speakers – relevant industries as requested by the College.</p>																																																																																																																			
Built Environment	All lectures/classes/labs and small group tutorials are held in the designated HIC and UH classrooms, seminar rooms and dedicated IT laboratories; students are encouraged to use University of Hertfordshire’s library and e-learning facilities for self-directed study. Students are encouraged to use their private IT facilities where possible; field-trips will be taken as required.																																																																																																																			
E-learning	College Portal/ Moodle; University StudyNet; Library																																																																																																																			
Library	College Lane Campus																																																																																																																			
Programme Framework	<table border="1"> <thead> <tr> <th colspan="7">University Foundation in Science and Engineering</th> </tr> <tr> <th colspan="3">Core Modules</th> <th rowspan="2">Credit Points</th> <th rowspan="2">Pass Mark %</th> <th rowspan="2">Exam %</th> <th rowspan="2">Coursework %</th> </tr> <tr> <th>Contact Hrs/Week</th> <th>College Module Code</th> <th>Module Name</th> </tr> </thead> <tbody> <tr> <td colspan="7">Semester 1</td> </tr> <tr> <td>4</td> <td>ILS001</td> <td>Interactive Learning Skills and Communication</td> <td>15</td> <td>50</td> <td>30</td> <td>70</td> </tr> <tr> <td>4</td> <td>BUS107</td> <td>Principles of ICT</td> <td>15</td> <td>50</td> <td>60</td> <td>40</td> </tr> <tr> <td>4</td> <td>BUS104</td> <td>Mathematics 1</td> <td>15</td> <td>50</td> <td>50</td> <td>50</td> </tr> <tr> <td colspan="7"><i>Engineering / PAM Pathway:</i></td> </tr> <tr> <td>4</td> <td>PHY101</td> <td>Physics 1</td> <td>15</td> <td>50</td> <td>70</td> <td>30</td> </tr> <tr> <td colspan="7"><i>Computer Science Pathway:</i></td> </tr> <tr> <td>4</td> <td>BUS106</td> <td>Business Studies</td> <td>15</td> <td>50</td> <td>60</td> <td>40</td> </tr> <tr> <td colspan="7">Semester 2</td> </tr> <tr> <td>4</td> <td>MTH002</td> <td>Mathematics 2</td> <td>15</td> <td>50</td> <td>70</td> <td>30</td> </tr> <tr> <td>4</td> <td>COM101</td> <td>Introduction to Programming</td> <td>15</td> <td>50</td> <td>50</td> <td>50</td> </tr> <tr> <td>4</td> <td>BUS105</td> <td>Statistics</td> <td>15</td> <td>50</td> <td>70</td> <td>30</td> </tr> <tr> <td colspan="7"><i>Engineering/ PAM Pathway:</i></td> </tr> <tr> <td>4</td> <td>PHY102</td> <td>Physics 2</td> <td>15</td> <td>50</td> <td>70</td> <td>30</td> </tr> </tbody> </table>	University Foundation in Science and Engineering							Core Modules			Credit Points	Pass Mark %	Exam %	Coursework %	Contact Hrs/Week	College Module Code	Module Name	Semester 1							4	ILS001	Interactive Learning Skills and Communication	15	50	30	70	4	BUS107	Principles of ICT	15	50	60	40	4	BUS104	Mathematics 1	15	50	50	50	<i>Engineering / PAM Pathway:</i>							4	PHY101	Physics 1	15	50	70	30	<i>Computer Science Pathway:</i>							4	BUS106	Business Studies	15	50	60	40	Semester 2							4	MTH002	Mathematics 2	15	50	70	30	4	COM101	Introduction to Programming	15	50	50	50	4	BUS105	Statistics	15	50	70	30	<i>Engineering/ PAM Pathway:</i>							4	PHY102	Physics 2	15	50	70	30
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		<i>Computer Science Pathway:</i>						
		4	MAC101	Introduction to Mass Communications	15	50	-	100
		Undergraduate Stage 1 : Science and Engineering				Engineering/ PAM Pathway: 120 credit points		
						Computer Science Pathway: 120 credit points		
Management		<p>The University Foundation in Science and Engineering programme is delivered on the College Lane Campus of University of Hertfordshire. This scenario seeks to provide the necessary resources to ensure that all students enrolled with HIC are afforded an educational experience that not only provides assimilation into campus and student life but is aligned with the standards and protocols of the University experience. The programme operates under and according to the general compliance structures determined by the Quality and Standards Office Navitas UK. This Office has oversight of all Navitas programmes operating in the UK. Any changes to a programme must be submitted via the normal Navitas UK processes through the Quality and Standards Office. The general operational management of the programme lies with HIC's Academic Services, which assume overall responsibility for the administrative and implementation functions. The HIC Manager of Academic Services or nominee is responsible for the day-to-day management of the programme inclusive of attendance monitoring. HIC's lecturers are responsible for the delivery and initial assessment of modules whilst appraisal of delivery and programme content is advised by the HIC Manager of Academic Services or nominee in consultation with the Quality and Standards Office Navitas UK and appropriate Link Tutors or subject specialists. The corresponding Board of Examiners or Learning and Teaching Board of the College, is identified as responsible for candidate progression to the UH/HIC Integrated First Year Degree in Science and Engineering.</p>						
Monitoring and Review		<p>Formal review of the University Foundation in Science and Engineering programme, takes place as an annual review between HIC, the Quality and Standards Office Navitas UK and representation from the School of Computer Science, School of Engineering and Technology and the School of Physics, Astronomy and Mathematics. Strategic, logistical and operational issues are developed within the remit of the Academic and Operational Advisory Committee (AOAC) held on a trimester basis and chaired by the Key Account Manager, University of Hertfordshire. Progression is determined via the HIC progression boards. For details of this review and quality management of this and all HIC programmes, see, CPR QS9. Informal Review takes place on a regular basis via interface between students, academic services and the teaching staff using both student surveys (inclusive of i-graduate) and teaching observation and module surveys, supporting HIC's continual improvement approach to academic quality.</p>						
Entry Requirements		<p>Standard and approved requirements for academic international benchmark qualifications see CPR 3. English language entry is at CEFR level B2 in line with UKVI requirements for FHEQ6.</p>						
Appendix 1		<p>Intended Learning Outcomes in the constituent modules – table inserted indicating direct mapping of LOs per module.</p>						
Appendix 2		<p>Delivery schedule incorporating notional, contact and self-directed hours of study applied to each module and therein the programme.</p>						
Appendix 3		<p>[N/A – Module conversion codes and descriptors and module mapping by pathway.]</p>						
Appendix 4		<p>[N/A – University Module Outlines for cross-check and parity.]</p>						

Appendix 1

Development of Programme Learning Outcomes (LOs) in the Constituent Modules:

The tables below map where the intended LOs of the programme are assessed in the core/constituent modules. It provides an aid to (i) academic staff in understanding how individual modules contribute to the programme aims, (ii) a checklist for quality control purposes, and (iii) a means to help students monitor their own learning, personal and professional development as the programme progresses.

Key: LOs which are assessed as part of a given module ✓✓

University Foundation for Engineering/PAM Pathway: Table 2a:

University Foundation in Science and Engineering (FHEQ 3)		Intended LOs																										
		Knowledge & Understanding												Intellectual Skills					Practical Skills				Transferable Skills					
Core Modules	Module Code	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3	D4	D5	
ILSC	ILS001												✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	
Mathematics 1	BUS104									✓✓						✓✓	✓✓	✓✓	✓✓	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	✓✓
Mathematics 2	MTH002									✓✓						✓✓	✓✓	✓✓	✓✓	✓✓				✓✓	✓✓	✓✓	✓✓	✓✓
Physics 1	PHY101	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓							✓✓	✓✓	✓✓	✓✓	✓✓		✓✓		✓✓	✓✓	✓✓	✓✓	✓✓
Physics 2	PHY102		✓✓			✓✓	✓✓	✓✓	✓✓							✓✓	✓✓	✓✓	✓✓	✓✓		✓✓		✓✓	✓✓	✓✓	✓✓	✓✓
Introduction to Programming	COM101	✓✓		✓✓	✓✓				✓✓	✓✓	✓✓	✓✓				✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	
Statistics	BUS105								✓✓	✓✓					✓✓	✓✓	✓✓	✓✓	✓✓	✓✓				✓✓	✓✓	✓✓	✓✓	
Principles of ICT	BUS107			✓✓	✓✓				✓✓			✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	

University Foundation for Computer Science Pathway: Table 2b:

University Foundation in Science and Engineering (FHEQ 3)		Intended LOs																										
		Knowledge & Understanding												Intellectual Skills					Practical Skills				Transferable Skills					
Core Modules	Module Code	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	B1	B2	B3	B4	B5	C1	C2	C3	C4	D1	D2	D3	D4	D5	
ILSC	ILS001												✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	
Mathematics 1	BUS104									✓✓						✓✓	✓✓	✓✓	✓✓	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	✓✓
Mathematics 2	MTH002									✓✓						✓✓	✓✓	✓✓	✓✓	✓✓				✓✓	✓✓	✓✓	✓✓	✓✓
Mass Communications	MAC101												✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	
Business Studies	BUS106	✓✓							✓✓					✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓			✓✓	✓✓	✓✓	✓✓	
Introduction to Programming	COM101	✓✓		✓✓	✓✓				✓✓	✓✓	✓✓	✓✓				✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	
Statistics	BUS105								✓✓	✓✓					✓✓	✓✓	✓✓	✓✓	✓✓	✓✓				✓✓	✓✓	✓✓	✓✓	
Principles of ICT	BUS107			✓✓	✓✓				✓✓			✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓		✓✓	✓✓	✓✓	✓✓	

Knowledge and Understanding

All awards:

- A1 The relationship the subject of engineering has to industry, business, human development and lifestyles and its applications to the contemporary world.
- A2 The principles underlying the use of materials in engineering applications along with their production, use and control.
- A3 The fundamentals of programming and how it is used and contributes to the engineering and computing process and solves engineering and computing problems.
- A4 The context and future development of engineering processes at personal, commercial, national and global levels.
- A5 The theories and key concepts of physical science in an interdisciplinary context.
- A6 How engineering contributes to the wider range of social and political issues.
- A7 Physical laws and their relevance to engineering principles.
- A8 How economic and technological developments effect the environment and their management.
- A9 The application of mathematic techniques to the engineering and logical decision making process.
- A10 The purpose and processes of object-orientated programming and an introductory understanding of Java.
- A11. The application of ICT as a fundamental tool for extracting, sourcing, describing and presenting data and information in a variety of relevant forms, and distributing data and information via a range of channels and formats.
- A12. The techniques and forms of effective and clear communication in a variety of academic and professional settings.

Skills and Attributes

Intellectual Skills

- B1 Make full use of library and IT search (catalogue and bibliographic) resources.
- B2 Apply basic research techniques to sourcing and selecting appropriate academic data and literature.
- B3 Integrate oral, written, non-verbal and diagrammatic skills to effect clear communication.
- B4 Ability to analyse data and various modes of information using appropriate numerical techniques.
- B5 Ability to begin to evaluate and start to apply, reasoned thinking and supportive evidence collation to conflicting sets of information and academic opinion.

Practical skills

- C1 Transfer and utilise key skills at a higher level of study.
- C2 Employ analytical skills and methodologies as a basis to further study.
- C3 Ability to begin to engage critically with regard to the underlying challenges facing the environment and engineering-based industries.
- C4 Develop the knowledge and skills to carry out basic laboratory manipulations with reference to University of Hertfordshire protocols and safety regulations

Transferable skills

- D1 Select, read, digest, summarise and synthesise information material in a variety of forms, both qualitative and quantitative (text, numerical data and diagrammatic) and in an appropriate manner to identify and determine key facts/themes and relevancy.
- D2 Use and clearly communicate discursive, numerical, statistical and diagrammatic ideas, concepts, results and conclusions using appropriate technical and non-technical language and language style, structure and form.
- D3 Application of basic research and referencing techniques to all aspects of study, information collation, information presentation and formulation of academic opinion.
- D4 Embedding the importance of self-study and reliance. This involves cultivating and developing a responsibility within each student to take cognizance for their own learning, initiative, effective time-management and self-discipline within the academic and professional environments.
- D5. Students will also begin to develop a very good conceptual understanding and evaluation of the main aspects of engineering that can serve them well in their future studies and careers.

Appendix 2

Teaching Rotations:

Semester 1 – Engineering/ PAM Pathway

Week	Total Hours									
	ILS001		BUS107		BUS104		PHY102		Contact hours/week	Self-directed study hours/week
	Interactive Learning Skills and Communication		Principles of ICT		Maths 1		Physics 1			
Contact hours	Self-dir Study	Contact hours	Self-dir study	Contact hours	Self-dir Study	Contact hours	Self-dir study			
1	4	10	4	10	4	10	4	10	16	40
2	4	10	4	10	4	10	4	10	16	40
3	4	10	4	10	4	10	4	10	16	40
4	4	10	4	10	4	10	4	10	16	40
5	4	10	4	10	4	10	4	10	16	40
6	4	10	4	10	4	10	4	10	16	40
7	4	10	4	10	4	10	4	10	16	40
8	4	10	4	10	4	10	4	10	16	40
9	4	10	4	10	4	10	4	10	16	40
10	4	9	4	9	4	9	4	9	16	36
11		9		9		9		9		36
12 (Exam)	2		2		2		2		8	
Total hours / module	42	108	42	108	42	108	42	108	168	432
Notional hours / module	150		150		150		150		600	
Credit Points	15		15		15		15		60	

Semester 2 – Engineering/ PAM Pathway

Week	Total Hours									
	MTH002		PHY102		COM101		BUS105		Contact hours/week	Self-directed study hours/week
	Maths 2		Physics 2		Introduction to Programming		Statistics			
Contact hours	Self-dir Study	Contact hours	Self-dir study	Contact hours	Self-dir Study	Contact hours	Self-dir study			
1	4	10	4	10	4	10	4	10	16	40
2	4	10	4	10	4	10	4	10	16	40
3	4	10	4	10	4	10	4	10	16	40
4	4	10	4	10	4	10	4	10	16	40
5	4	10	4	10	4	10	4	10	16	40
6	4	10	4	10	4	10	4	10	16	40
7	4	10	4	10	4	10	4	10	16	40
8	4	10	4	10	4	10	4	10	16	40
9	4	10	4	10	4	10	4	10	16	40
10	4	9	4	9	4	9	4	9	16	36
11		9		9		9		9		36
12 (Exam)	2		2		2		2		8	
Total hours / module	42	108	42	108	42	108	42	108	168	432
Notional hours / module	150		150		150		150		600	
Credit Points	15		15		15		15		60	

Semester 1 – Computer Science Pathway

Week	Total Hours									
	ILS001		BUS107		BUS104		PHY102		Contact hours/week	Self-directed study hours/week
	Interactive Learning Skills and Communication		Principles of ICT		Maths 1		Business Studies			
Contact hours	Self-dir Study	Contact hours	Self-dir study	Contact hours	Self-dir Study	Contact hours	Self-dir study			
1	4	10	4	10	4	10	4	10	16	40
2	4	10	4	10	4	10	4	10	16	40
3	4	10	4	10	4	10	4	10	16	40
4	4	10	4	10	4	10	4	10	16	40
5	4	10	4	10	4	10	4	10	16	40
6	4	10	4	10	4	10	4	10	16	40
7	4	10	4	10	4	10	4	10	16	40
8	4	10	4	10	4	10	4	10	16	40
9	4	10	4	10	4	10	4	10	16	40
10	4	9	4	9	4	9	4	9	16	36
11		9		9		9		9		36
12 (Exam)	2		2		2		2		8	
Total hours / module	42	108	42	108	42	108	42	108	168	432
Notional hours / module	150		150		150		150		600	
Credit Points	15		15		15		15		60	

Semester 2 – Computer Science Pathway

Week	Total Hours									
	MTH002		MAC101		COM101		BUS105		Contact hours/week	Self-directed study hours/week
	Maths 2		Introduction to Mass Communications		Introduction to Programming		Statistics			
Contact hours	Self-dir Study	Contact hours	Self-dir study	Contact hours	Self-dir Study	Contact hours	Self-dir study			
1	4	10	4	10	4	10	4	10	16	40
2	4	10	4	10	4	10	4	10	16	40
3	4	10	4	10	4	10	4	10	16	40
4	4	10	4	10	4	10	4	10	16	40
5	4	10	4	10	4	10	4	10	16	40
6	4	10	4	10	4	10	4	10	16	40
7	4	10	4	10	4	10	4	10	16	40
8	4	10	4	10	4	10	4	10	16	40
9	4	10	4	10	4	10	4	10	16	40
10	4	9	4	9	4	9	4	9	16	36
11		9		9		9		9		36
12 (Exam)	2		2		2		2		8	
Total hours / module	42	108	42	108	42	108	42	108	168	432
Notional hours / module	150		150		150		150		600	
Credit Points	15		15		15		15		60	