



**School of Engineering and Built Environment**

**Department of Construction and Surveying**

**BEng (Hons) Fire Risk Engineering**

**Programme Specification 2018-2019**

## Programme Specification Pro-forma

### 1. GENERAL INFORMATION

1. Programme Title:	BEng/BEng (Hons) Fire Risk Engineering
2. Final Award:	BEng (Hons) Fire Risk Engineering
3. Exit Awards:	CertHE/DipHE/BEng Fire Risk Engineering
4. Awarding Body:	Glasgow Caledonian University (GCU)
5. Approval Date:	June 2015
6. School:	Engineering and Built Environment (EBE)
7. Host Division/Dept:	Construction and Surveying
8. UCAS Code:	H121
9. PSB Involvement:	IFE
10. Place of Delivery:	GCU
11. Subject Benchmark Statement:	Engineering
12. Dates of PSP preparation/revision:	July 2015

## **2. EDUCATIONAL AIMS OF THE PROGRAMME**

### **General Aims:**

- (a) to provide the construction industry with well educated, competent Fire Risk Engineers capable of responding to industry's current and future needs
- (b) to prepare students for their careers, further personal study, and for personal and professional development

### **Aims of the Programme at BEng (Hons) Fire Risk Engineering level exit point:**

- (a) to provide students with a high quality undergraduate degree programme comprising Fire Engineering competencies
- (b) to deliver a demanding programme which equips students with key knowledge, comprehension and skills competency essential for Engineers in construction.
- (c) to provide an education base and degree programme which is recognised as an approved course in part meeting the academic criteria for CEng, as defined in The UK Standard for Professional Engineering Competence (UK-SPEC) as supported by the Institution of Fire Engineers
- (d) to provide students with the necessary academic knowledge and professional ability to be applied in a challenging career in the engineering profession
- (e) to enable students to develop intellectual strengths and creative powers which are flexible and adaptable to the rapidly changing demands of industry and society
- (f) to enable students to develop and maintain personal transferable skills
- (g) to enable students to develop good judgement and innovative thinking processes by the development and application of logical analysis, evaluation and synthesis techniques and
- (h) to introduce students to research methods and a learning experience which promotes and encourages a culture of lifelong learning throughout their career

**3. INTENDED LEARNING OUTCOMES** – *the programme provides opportunities for students to develop and demonstrate knowledge and understanding, skills, qualities and other attributes in the following areas:*  
[cross refer to the appropriate benchmark statement]

**3A Knowledge and Understanding:**

- A1 Explain how buildings are put together and demonstrate an awareness of the principles of design
- A2 Develop an in-depth knowledge of fire modelling techniques, human behaviour, fire engineering design, Building regulation and fire risk management
- A3 Demonstrate an awareness of the social and economic aspects of building and safety regulation
- A4 Assess client and project requirements and provide appropriate advice regarding fire engineering design and regulation and fire risk management issues
- A5 Develop fire engineering design and fire risk management expertise
- A6 Demonstrate appropriate levels of knowledge and understanding in a variety of related building design, regulation and management topics

**3B Intellectual Skills:**

- B1 Exhibit strategic, logical, rational and resourceful thinking in the approach to problem-solving activities
- B2 Plan, research and execute tasks effectively
- B3 Exercise personal and professional integrity and sound independent judgement
- B4 Show initiative and flexibility in the application of fire risk engineering principles and techniques
- B5 Demonstrate efficient professional judgement underpinned and informed by technical ability
- B6 Evaluate research material from a variety of sources and critically appraise and evaluate results

**3C Professional/ Practical Skills:**

- C1 Apply theoretical learning to practical and discipline-orientated tasks
- C2 Practically apply the concepts, skills and knowledge of core subject areas within the discipline
- C3 Demonstrate effective use of knowledge and techniques in the discipline area

- C4 Apply appropriate professional and transferable skills within a professional environment
- C5 Demonstrate effectiveness as a team member within a professional context both within and outwith Glasgow Caledonian University
- C6 Exercise personal and professional integrity

**3D Transferable/Key Skills:**

- D1 Critical thinking and problem solving
- D2 Cognitive/intellectual skills
- D3 Knowledge and understanding in the context of the subject
- D4 Key life skills
- D5 Learning style and orientation to learning
- D6 Time management (organising and planning work)
- D7 Independent working
- D8 Planning, monitoring, reviewing and evaluating own learning and development
- D9 Self-marketing marketing/presentation skills
- D10 Information retrieval skills
- D11 Utilising statistical fire safety information
- D12 Group working
- D13 IT Skills
- D14 Communication skills, written, oral and listening

The **Curriculum Map** in **Appendix A** shows how these Programme Learning Outcomes relate to the modules which make up the programme of study.

**Teaching learning and assessment methods used to enable the above outcomes to be achieved and demonstrated include:**

- Lectures, tutorials and seminars
- Workshops and laboratories
- Industrial / site visits and field trips
- Visiting lecturers from industry and practice
- Web-based materials through a managed learning environment (GCULearn)
- Problem-based learning scenarios

- Individual projects
- Computer application activities
- Self-directed learning facilitated by reference materials
- Use of research-based learning materials and methods
- Group work and projects

### **Assessment:**

The totality of approaches to assessment (formal unseen examinations, major and minor coursework activities, class tests, poster displays, student oral presentations, computer-based exercises, dissertation or honours level project) is based on the appropriateness to the learning outcomes in each module and the Learning Outcomes of the Programme.

Methods of assessment include:

- Exams
- Coursework
- Student oral presentations
- Case study analysis
- Reports
- Role play
- Dissertation
- Simulated 'live' design projects
- Laboratory visits

### **Learning, Teaching and Assessment Strategy**

The development of the Programme Board's learning teaching and assessment strategy has been informed by the University's Learning Teaching and Assessment Strategy (LTAS) 2008-15 and beyond, and the School's Learning Teaching and Assessment Strategy 2009-10 and beyond, including the School's LTAS Review in Session 2009-10.

The balance between methods of assessment is based on the appropriateness to the learning outcomes in each module and the Learning Outcomes of the Programme. The range of learning teaching and assessment methods are listed above.

The School's Admission Tutors endeavour to provide appropriate guidance and support to all applicants, to ensure that students entering a particular programme of study are fully aware of the core skills and knowledge required, and the core activities which must be undertaken to achieve the award.

Where a student highlights a need for additional support the School, in conjunction with the School's Disability Co-ordinator, and the University Student Support Services, will determine an appropriate course of action to address the needs of the student.

The staff within the School have considerable experience in supporting students who have / experience difficulties, and work closely with the University Student Support Services to ensure that

appropriate support is provided to suit each student's individual needs, A number of strategies have been adopted as required to allow such students to fully participate in their programme of study, including the provision of materials in advance, use of scribes, signers, specialist software and the like.

#### 4. PROGRAMME STRUCTURES AND REQUIREMENTS, LEVELS, MODULES, CREDITS AND AWARDS

This programme is designed to provide for both full-time and part-time study.

Each level of the programme consists of six modules, or the equivalent, totalling 120 credits. The delivery structure for the full-time route utilises two trimesters per academic session, with 60 SHE credits per trimester. The part-time route utilises more variable levels of entry more often than the full-time mode but, in general, the part-time route consists usually of four modules per academic year, or the equivalent, totalling 80 credits, ie 40 credits per trimester. The following tables illustrate the Full-Time and Part-Time Programme Structures.

##### FULL-TIME ROUTE

<b>Full Time Under-Graduate</b>		
<b>SHE1 Level</b>		
Module Code	Module Title	Credit
M1G121961/AB	Applied Mathematics 1	20
M1H120822/AB	Structural Mechanics (Statics & Dynamics)	20
M1K203077/AB	Professional Orientation and Practice	20
M1K902905/AB	Environmental Physics & Design	20
M1H120901/AB	Fluid Mechanics & Thermodynamics	20
M1K2218844/AB	Construction Materials	20
<b><i>Exit Award – Certificate of Higher Education</i></b>		<b>120</b>
<b>SHE2 Level</b>		
Module Code	Module Title	Credit
M2H120263/AB	Fire Engineering Analysis & ASET	40
M2H120264/AB	Required Safe Egress Time (RSET)	20
M2K221185/AB	Design and Regulation 1	20
M2H123702/A	Introduction to Fire Engineering Mathematics and Structures	20
M2H120266/B	Fire Engineering Design & Risk Management	40
<b><i>Exit Award – Diploma of Higher Education</i></b>		<b>260</b>

<b>SHE3 Level</b>		
Module Code	Module Title	Credit
M3H121217/A	Suppression Systems Design	20
M3H123199/B	Fire Dynamics	20
M3H121214/B	Structural Fire Protection	20
M3K221186/B	Design and Regulation 2	20
M3K220211/A	Managed Project Learning	20
MHH123701/A	Introduction to CAD and CFD	20
<b><i>Exit Award – BEng Fire Risk Engineering</i></b>		<b>380</b>
<b>SHEH Level</b>		
Module Code	Module Title	Credit
MHK202864/A	Dynamic Systems Design 2	20
MHH102870/A	Evacuation Systems Design	20
MHH123843/B	Fire Engineering Design and Risk Management 2	20
MHH102871/B	Fire Risk Assessment	20
MHK221198/AB	Dissertation	40
<b><i>Exit Award – BEng (Hons) Fire Risk Engineering</i></b>		<b>500</b>



## Part-time Undergraduate

<b>SHE1 Level</b>		
Module Code	Module Title	Credit
None	There is no Level 1 entry provision for PT students. Students will have advanced entry based on relevant previous experience & / or education. Typically a student with a relevant HND/HNC may be accepted Level 1/PT Yr 2 or Level 2/PT Yr 3 of the part-time programme.	RPL
<b>Exit Award – None</b>		<b>60</b>
<b>SHE2 Level 2/3 Year 2 PT</b>		
Module Code	Module Title	Credit
C M1G121961/AB	Applied Mathematics 1	20
C M3K220211/A	Managed Project Learning	20
O M3K221186/B	Design and Regulation 2	20
O M3H123717/C	Project and Programme Management Principles	20
<b>Exit Award – Certificate of Higher Education</b>		<b>120</b>
<b>SHE3 Level 2/3 Year 3 PT</b>		
Module Code	Module Title	Credit
C M2H120263/AB	Fire Engineering Analysis & ASET	40
C M2H120264/AB	Required Safe Egress Time (RSET)	20
C M2H120266/B	Fire Engineering Design & Risk Management	40
C M2H123702/A	Introduction to Fire Engineering Mathematics and Structures	20
<b>Exit Award – Diploma of Higher Education</b>		<b>240</b>

**SHEH Level 3/4 Year 4 PT**

C	Module Code	Module Title	Credit
C	MHH123701/A	Introduction to CAD and CFD	20
C	M3H121217/A	Suppression Systems Design	20
C	M3H123199/B	Fire Dynamics	20
C	M3H1212141/B	Structural Fire Protection	20
C	M3K220514/AB	Work Based Learning (FSDR)	20
O	M3K221186/B	Design and Regulation 2	20
O	M3H123717/C	Project and Programme Management Principles	20
<b><i>Exit Award – BEng Fire Risk Engineering</i></b>			<b>360</b>

**SHEH Level 4 Year 5 PT**

	Module Code	Module Title	Credit
C	MHK202864/A	Dynamic Systems Design 2	20
C	MHH102870/A	Evacuation Systems Design	20
C	MHH123843/B	Fire Engineering Design and Risk Management 2	20
O	MHH102871/B	Fire Risk Assessment	20
O	MHH123703/B	Fire Investigation	20
C	MHK221198/AB	Dissertation (2011)	40
<b><i>Exit Award – BEng (Hons) Fire Risk Engineering</i></b>			<b>480</b>

## 5. SUPPORT FOR STUDENTS AND THEIR LEARNING

Students are supported during their studies as follows:

- Induction programme
- Student Programme Handbook
- Module Handbooks and Module Descriptors
- Saltire Centre with access to other local and national library resources
- Academic Advisors to assist with academic / personal / other issues
- Dissertation Supervisor
- Personal Development Planning (PDP) – badged as Professional Development (PD) within EBE
- Student e-mail facilities
- Open access to IT facilities – School and University
- Open access to School staff including Programme Leader, Module Leaders, Module Tutors, Academic Advisors
- Open Access to School's Learning Development Centre
- Academic Development Tutor (Levels 1 & 2 FT and PT equivalents)
- Programme of CPD seminars and Visiting Lecturer presentations
- Computer Assisted Learning facilities and Management Learning Environment (GCU Learning)
- Industrial and professional links
- Professional body links and contacts
- Student Representation on Programme Board
- Student Representation on School Board
- Student Representation on Senate and its Standing Committees
- Student Staff Consultative Group
- Module Feedback Questionnaires (MFQ) / Questback on-line feedback facility
- Reference to SHEFC Teachability project
- Reference to GCU Equality and Diversity Policy

## 6. CRITERIA FOR ADMISSION

*Candidates must be able to satisfy the general admissions requirements of Glasgow Caledonian University*

### ***Programme Admission Requirements:***

SQA Higher -BBCC including Maths and either Physics, Technological Studies or Engineering Science.

A level-CCC including Maths and either Physics, Technological Studies or another Technology/Engineering subject.

ILC Higher-H2 H2 H4 H4 including Maths and Physics. English is also required at Ordinary Level O2.

IB Diploma-25 points must include Maths and Physics

BTEC-Level 3 Extended Diploma in Engineering subject at MMM

SWAP Access-SWAP STEM programme at BBB

### ***Flexible Entry: Credit Transfer and RPL***

Applicants who do not meet the standard entry requirements will be considered on individual merit. Such consideration may particularly apply to part-time and mature applicants, who are working or who have worked in a relevant capacity within the discipline area. The University Guidelines for Flexible Entry under Credit Transfer and Recognition of Prior Informal Learning 2011 amended 2016 (RPL) will apply as appropriate.

Individual interviews are not normally part of the admissions process; however the Programme Board reserves the right to invite applicants for interview, especially those who do not meet the primary entry requirements.

### ***Entry with Advanced Standing***

Relevant HN Award for Entry: Built Environment or equal

Direct Entry Year 2 Applicants with HNC/HND qualifications will be considered for advanced entry based on the content of their programme of study, evidence of achievement and, where appropriate, work experience.

### ***International Students***

For applicants whose first language is not English, a minimum IELTS score of 6.0 (with a minimum of no less than 5.5 in each element) OR a minimum TOEFL rating of 550 OR an equivalent qualification is required to demonstrate competence in the English language.

For international applicants who do not meet the programme entry requirements, the INTO Foundation programme in Built Environment / Engineering is available. Successful completion of the Foundation programme, allows entry to Level 2 of the EBE honours degree programme, provided the required level of performance is achieved.

## **7. METHODS FOR EVALUATING AND IMPROVING THE QUALITY AND STANDARDS OF TEACHING AND LEARNING**

### **1.1.1.1.1 Mechanisms for review and evaluation of teaching, learning, assessment, the curriculum and outcome standards:**

- Annual Programme Monitoring Process via Annual Programme Analysis (APA)
- Annual Module Operation and Review process (MOR)
- Module Feedback Questionnaire (MFQ) / Questback on-line feedback facility
- External Assessors' Reports
- Annual monitoring and reporting (as required by Professional and/or Statutory Bodies)
- School Quality Advisory Committee (SQAC)
- School Programme Management Group (PMG)
- Programme Board
- University Enhancement Led Internal Subject Review (ELISR) events
- Continued accreditation by professional body(ies)

### **1.1.1.1.2 Committees with responsibility for monitoring and evaluating quality and standards:**

- Student-Staff Consultative Group (SSCG)
- Programme Board (PB)
- School Board
- Assessment Board (AB)
- University Learning and Teaching Sub-Committee (LTSC)
- University Academic Policy Committee (APC)
- University Senate
- School Quality Advisory Committee (SQAC)
- School Programme Management Group (PMG)

#### **1.1.1.1.3 Mechanisms for gaining student feedback on the quality of teaching and their learning experience:**

- Student-Staff Consultative Group (SSCG)
- Student representation on Programme Board (PB)
- Student representation on School Board
- Student representation on Senate Standing Committees
- Module Feedback Questionnaire (MFQ) / Questback on-line feedback facility
- External Assessors' Visits
- Open access to members of Programme Team e.g. Module Leaders, Programme Leader, Academic Advisor, Year Tutor.
- Open Access to School's Learning Development Centre
- Academic Development Tutor

#### **1.1.1.1.4 Staff development priorities include:**

- University Masters Programme in Teaching and Learning in Higher Education (TLHE)
- Discipline-based Continuous Professional Development (CPD)
- University Performance Development and Review (PDR)
- Peer Support for Teaching
- Mentoring Scheme for New Lecturing Staff
- Conference and Seminar attendance and presentation
- Research Assessment Exercise (RAE) submission/ Research Excellence Framework (REF)
- Membership of Higher Education Academy (HEA)
- Membership of and involvement with Professional Bodies (IFE; SFPE; CABE; CIOOSH etc.)

## **8. ASSESSMENT REGULATIONS**

The University Assessment Regulations 2017-18 apply to the Programme in all respects. There are no programme-specific regulations which deviate from the standard University Assessment Regulations. The Programme's structure, progression, credits and awards are wholly consistent with the GCU Qualifications Framework.

**Awards:**

For the awards of Certificate of Higher Education, Diploma of Higher Education, BEng Fire Risk Engineering and BEng (Hons) Fire Risk Engineering

- Minimum pass mark of 40% for each taught module
- Minimum pass mark of 40% for Dissertation/Honours Project module
- To qualify for an award of Certificate of Higher Education, students must complete all the programme requirements and obtain 120 SHE credits, of which a minimum of 90 must be SHE1
- To qualify for an award of Diploma of Higher Education, students must complete all the programme requirements and obtain 240 SHE credits, of which a minimum of 90 must be SHE2
- To qualify for an award of BEng in Fire Risk Engineering, students must complete all the programme requirements and obtain 360 SHE credits, of which a minimum of 90 must be SHE3
- To qualify for an award of BEng (Hons) in Fire Risk Engineering, students must complete all the programme requirements and obtain 480 SHE credits, of which a minimum of 90 must be SHEH

**Regulations for Distinction:**

The Programme complies with the University Assessment Regulations in respect of the award of Distinction. To be awarded a Certificate/Diploma/BEng with Distinction, a student must obtain an overall average of 70% or more with no individual module mark below 55%, all at the first attempt.

**Role of External Assessor:**

Senate appoints External Assessors to the Assessment Board (AB) on the basis of nominations from Schools and approval through the University QA and QE processes.

The duties of an External Assessor will include the following:

- To moderate the work of the internal assessors in respect of the assessments under his/her jurisdiction
- To attend Assessment Boards at which the results of final stage assessment will be determined
- To satisfy himself/herself that the work and decisions of the Assessment Board(s) are consistent with the policies and regulations of the University and best practice in higher education
- To ensure that students are assessed within the regulations approved by the University for the progression of students and to inform the University on any matter which, in his/her view, mitigates against the maintenance of proper academic standards
- To report annually to the Clerk to Senate on the standards attained by students on the programme and on other matters which may seem appropriate for their report

## 9. INDICATORS OF QUALITY AND STANDARDS

- Annual Module Operation and Review (MOR)
- Annual Programme Analysis (APA)
- Continued accreditation by professional body(ies)
- QAA or equivalent subject reviews including:
  - University Enhancement Led Institutional Review (ELIR)
  - University Enhancement Led Internal Subject Review (ELISR)
- Annual External Assessor Reports

## 10. INFORMATION ABOUT THE PROGRAMME

Key information about the programme can be found in:

- Programme Website [www.gcu.ac.uk/study/undergraduate/courses/fire-risk-engineering-9114.php?loc=uk](http://www.gcu.ac.uk/study/undergraduate/courses/fire-risk-engineering-9114.php?loc=uk)
- Programme Documents produced for internal re-approval events
- Programme Brochure
- Student Programme Handbook
- Module Handbooks
- University Website <http://www.gcu.ac.uk>
- School Website
- GCULearn
- University Prospectus
- School marketing publications



This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning assessment methods of each module can be found in the University Module catalogue which can be accessed from the University web-site. The accuracy of the information in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.

A curriculum map is attached in **Appendix A** showing how the learning outcomes are being developed and assessed within the programme. This relates the modules from Section 4 to the outcomes in Section 3.

DATE: **July 2018**

## **2 Appendix A - Curriculum Map for BEng (Hons) Fire Risk Engineering**

The curriculum map links the modules (Section 4) to the Outcomes listed in Section 3

This map provides both a design aid to help academic staff identify where the programme outcomes are being developed and assessed within the course. It also provides a check list for quality assurance purposes and could be used in approval, accreditation and external examining processes. This also helps students monitor their own learning, and their personal and professional development as the course progresses. The map shows only the main measurable learning outcomes which are assessed. There are additional learning outcomes (eg attitudes and behaviour) detailed in the module specifications which are developed but do not lend themselves to direct measurement

Modules

Programme outcomes

	2.2 Code	2.3 Title	A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	B6	C1	C2	C3	C4	C5	C6	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10	D11	D12	D13	D14		
EL 2	2.5 M1G10 8783	2.6 Applied Mathematics 1	2.7	2.7	2.7	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	
	M1K203077	Professional Orientation and Practice			X	X			X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X			
	M1K202824	Construction Materials	X	X				X	X	X			X	X	X		X				X	X	X			X	X	X		X		X	X	X		
	M1H120901	Fluid Mechanics & Thermodynamics	X						X	X	X		X							X	X	X	X			X	X						X	X		
	M1H120822	Structural Mechanics (Statics & Dynamics)	X						X	X	X		X							X																
	M1K902905	Environmental Physics & Design	X	X				X	X	X			X	X	X		X				X	X	X			X	X	X				X	X	X		
	M2H120263	Fire Engineering Analysis & ASET		X		X	X	X	X	X		X	X		X	X	X		X		X	X	X			X	X	X	X	X		X	X	X		






**Trimester B**

<b>Date</b>	<b>Module</b>	<b>Coursework</b>
