Course Handbook

BEng (Hons) Fire Engineering*
MEng (Hons) Fire Engineering*
2019/20

Course Leaders:

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School of Engineering

COURSE SUBJECT TO CHANGE

This course is subject to formal course review and reapproval by the University during 2018/19 as part of its normal cycle of regular review (a process called Periodic Review). Course information and programme specifications are updated and reviewed as part of this process and course structure and content may be changed to enable the University to deliver a better quality of educational experience to students. This can be in response to various factors including: student feedback; annual reports from external examiners; feedback from the sector or industry advisors or as part of the regular review process by course teams.

This process may well result in changes to the structure and content of the current course as outlined in this Handbook. Any changes made as a result of the process will be immediately included in the course documentation and all students holding current offers will be provided with revised versions prior to the commencement of their programme. If you are not satisfied with the changes, you will be offered the opportunity to withdraw from the programme and, if required, reasonable support to transfer to another provider. The expected timetable for completion of this reapproval process is August 2019.
*subject to reapproval

Please read this Handbook in conjunction with the University's Student Handbook.

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1.0 Welcome to the course

These programmes lead to the degree award of Bachelor of Engineering in Fire Engineering or Master of Engineering in Fire Engineering. The level of education provided by the programme is appropriate to those students who will eventually hold senior positions within the fire-related professions. Throughout the programme emphasis will be placed on self-motivation, critical thinking and analytical depth.

Both the BEng and MEng* programmes in Fire Engineering are accredited by the Energy Institute (EI), Chartered Institution of Building Services Engineers (CIBSE) and Institution of Fire Engineers (IFE). These professional accrediting bodies play an active part in ensuring the course is developed to meet professional needs. The accreditation of your course is printed on the final certificate when you graduate.

**Note that the existing MEng programme accreditations with CIBSE and IFE are due for review in 2019 and are yet to be confirmed for students commencing the programme in 2019.*

1.1 Rationale, aims and learning outcomes of the course

This programme is designed to lead to the award of the BEng (Hons) in Fire Engineering or MEng (Hons) in Fire Engineering. The level of education provided by the programmes are appropriate to those students who will eventually hold senior management positions within the fire-related professions. Throughout the programme, emphasis will be placed on self-motivation, critical thinking and analytical depth.

The programmes are concerned with the study of fire development and prevention and the means by which its consequence may be reduced to a minimum in human, environmental and financial terms. The programme emphasises Fire Engineering in the context of buildings and infrastructure. It is supported by an established research base and builds on the training and educational programmes offered by the Institution of Fire Engineers.

The BEng/ MEng (Hons) Fire Engineering programmes are designed to achieve partial accreditation of the Energy Institute (EI) for Chartered Engineer status (CEng) and Members Status with the Institution of Fire Engineers (IFE) and the Chartered Institute of Building Services Engineers (CIBSE). The accreditation of your course is printed on the final certificate when you graduate.

1.2 Career Opportunities

The application of Fire Engineering is multi-disciplinary and it is envisaged that, as in the professional world, you will carry out project work, which will facilitate dialogue between the Fire Engineer and other members of the design and management teams. It is the development of novel technological and engineering solutions within the often contradictory constraints of safety, economy and the law which pose the challenge in the course.

In the past, the emphasis has centred on practical engineering analysis and training, however this focus is now changing. This course will promote the need to question evidence and anecdotal statements and provoke independent critical thought. In a time of rapid technological advancement, when the international community is aware of and sensitive to environmental issues including health and safety management systems, you will have sufficient understanding of the technology underpinning and current developments to analyse and offer solutions to the problems faced by consulting engineers in the field of Fire Engineering.

As a result you will find that the programme is now characterised by parallel themes of management, engineering and project work. The management theme will develop your capabilities as a project manager in the field of fire engineering, whilst the project modules will provide scope for integrative studies on practical engineering and design situations.

Some of the modules you will be taking on the programme are common to several programmes and as such, you will be studying alongside those students – both full and part time. This will, no doubt, help you to gain a good insight into the nature and scope of these closely related fire disciplines.

1.3 Preparing for your career opportunities

Your University experience is not only about achieving your chosen award, it is also about developing as a person and realising your potential. We want you to gain the skills and attitudes that will help you to achieve your goals and aspirations.

Your future is important to us, so to make sure that you achieve your full potential whilst at university and beyond, your course has been designed with employability learning integrated into it. This is not extra to your degree, but an important part of it which will help you to show future employers just how valuable your degree is. These “Employability Essentials” take you on a journey of development that will help you to write your own personal story of your time at university:

- To begin with, you will explore your identity, your likes and dislikes, the things that are important to you and what you want to get out of life.
- Later, you will investigate a range of options including jobs and work experience, postgraduate study and self- employment,

- You will then be ready to learn how to successfully tackle the recruitment process.

It's your future: take charge of it!

Careers offers a range of support for you including:-

- Career and employability advice and guidance appointments
- Support to find work placements, internships, voluntary opportunities, part-time employment and live projects
- Workshops, seminars, modules, certificates and events to develop your skills
- Daily drop in service available from 09:00-17:00 for CV checks and initial careers information. For more information come along and visit the team (in Foster Building near the main entrance) or access our careers and employability resources via the Student Portal.

1.4 Aims of the Course

It is important that you and the teaching team are clear about exactly what we are aiming to achieve.

The aims of the BEng (Hons) Fire Engineering programme are to:

- Prepare students with the necessary scientific, engineering and technological principles and tools to resolve complex design problems in fire and fire safety applications.
- Develop a suitable understanding and application of management skills, including team working, leadership and organisation to implement strategies to resolve engineering design problems and projects.
- Develop an expertise in the application of health and safety management systems to resolve problems, implement safe design solutions and to ensure safe working environments.
- Develop the use of appropriate analytical and computational methods in the study of fires and the resolution of fire engineering problems for the built environment and related infrastructure.
- Provide an understanding and application of the legal principles as they impact upon the study of fires and fire safety, including design, project control and implementation.
- Develop safe building designs, taking account of the influences and implications of human behaviour in fires.

The aims of the MEng (Hons) Fire Engineering programme are to:

- Prepare students with the necessary scientific, engineering and technological principles and tools to resolve complex design problems in fire and fire safety applications individually and as part of a team.
- Develop an in-depth understanding and application of management skills, including team working, leadership and organisation to implement strategies to resolve engineering design problems and projects.

- Develop an expertise in the application of health and safety management systems to resolve problems, implement safe design solutions and to ensure safe working environments.
- Develop the use of appropriate analytical and computational methods in the study of fires and the resolution of fire engineering problems for the built environment and related infrastructure.
- Provide an in-depth understanding and application of the legal principles as they impact upon the study of fires and fire safety, including design, project control and implementation.
- Develop safe building designs, individually and as part of a team, taking account of the influences and implications of human behaviour in fires.

1.5 Learning Outcomes of the Course

This list of the major learning outcomes of the programmes will give you an idea of the global learning goals. However in the module booklets you will see the syllabuses of the individual modules and their learning outcomes that will give your more information. You could also refer to the module descriptions, which are in effect summaries of the module booklets and are available on BlackBoard.

At the end of the BEng/MEng (Hons) Fire Engineering programme you will have a knowledge and understanding of, and be able to:

- Demonstrate an understanding of the key principles of all relevant scientific and engineering aspects relating to fires and combustion and their applications to the study of fire engineering for the built environment using simulated scenarios and actual case studies;
- Demonstrate an understanding of the design, operation and performance of technological design solutions to achieve fire safety in built structures;
- Demonstrate and critically evaluate the use of appropriate strategies for the application of fire engineered solutions;
- Describe the interrelationships between the professional inputs into fire engineering and fire engineered project solutions with respect to applicable managerial, legal and social parameters.

Additionally at the end of the MEng (Hons) Fire Engineering programme you will have a knowledge and understanding of, and be able to:

- Apply managerial, legal and social principles of solution of fire engineering problems.

At the end of the BEng/MEng (Hons) Fire Engineering programme you will have obtained the following thinking skills and be able to:

- Evaluate the concepts, values and debates which inform study and practice in fire engineering;
- Employ appropriate problem solution skills, as appropriate, in the processes of analysis, synthesis, evaluation and summarization of ideas and information and the proposal of solutions;
- Debate in a rational manner future strategies and proposals for the resolution of fire safety problems, design and project management solutions in a changing social environment.

Additionally at the end of the MEng (Hons) Fire Engineering programme you will have obtained the following thinking skills and be able to:

- Critically evaluate solutions to problems provided by others.
- Appraise and employ appropriate business, legal, social, cultural, environmental issues for fire safety engineering.

At the end of the BEng/MEng (Hons) Fire Engineering programme you will be able to:

- Generate ideas, proposals and solutions or arguments independently and/or collaboratively in response to set scenarios and/or self-initiated activity;
- Evaluate whether design solutions integrate social, legal, engineering and technical requirements;
- Identify appropriate design and governance problems and formulate clear objectives using analytical data and I&CT software as appropriate;
- Develop design briefs with clarity graphically and/or in written specifications;
- Demonstrate ability in independent planning and execution of a research project in fire engineering.

Additionally at the end of the MEng Fire Engineering programme you will be able to:

- Identify appropriate design and governance problems and formulate clear objectives using CFD software
- Implement proposals and solutions, independently and/or collaboratively in response to set scenarios and/or self-initiated activity involving fire engineering and building services solutions

During the BEng/MEng (Hons) Fire Engineering programmes you will also develop transferable skills and be able to:

- Prepare and present arguments and illustrative materials in a variety of formats.
- Demonstrate literacy and information sourcing and retrieval skills.
- Use CAE literacy including CFD modelling.
- Demonstrate communication skills in a variety of formats.
- Demonstrate self-reliance, time management, the capacity for independent learning and the ability to work effectively with others in the context of a team;
- Demonstrate negotiation skills and skills in listening and evaluating the opinions and values of others.

Additionally during the MEng Fire Engineering programme you will also develop transferable skills and be able to:

- Demonstrate the ability to communicate and present critical arguments to a range of audiences

Most students registered on the BEng (Hons) Fire Engineering programme will go on to study and achieve a Bachelor of Engineering degree with Honours; however, you may also exit your degree scheme with a Bachelor of Science degree without honours, a Diploma in Higher Education (DipHE) or a Certificate in Higher Education (CertHE).

Most students registered on the MEng Fire Engineering programme will go on to study and achieve a Masters degree; however, you may also exit your degree scheme with a Bachelor of Science degree with or without honours, a Diploma in Higher Education (DipHE) or a Certificate in Higher Education (CertHE).

1.6 Course Team

Names and contact details of the key members of the team.

Course Leaders

Tracy Bradford — BSc (Hons), MSc (Fire Safety Engineering)
Course Leader BEng Fire Engineering
Senior Lecturer (Fire Safety Engineering)
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Course Leader MEng Fire Engineering
Senior Lecturer (Fire Engineering)
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Academic Lead

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Academic Staff

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Senior Lecturer (Forensic Fire Investigation)
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James Fowler — BEng (Hons) (Fire Engineering)
Lecturer in Fire Studies
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Khalid Khan — BSc (Hons), MSc, PhD (Chaos Theory, Systems Engineering),
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Weiming Liu — BSc, MSc, PhD
Senior Lecturer (Fire Safety Engineering)
E-mail: wliu1@uclan.ac.uk Ext 3239 Room JBF003

Jianqiang Mai — BEng, MEng (Fluid Machinery), PhD (Mechanical Engineering)
Senior Lecturer (Fire Engineering)
Email: JMai@uclan.ac.uk Ext 4335 Room JBF007

Shephard Ndlovu — BSc (Hons), MIFE, IFSM, FHEA
Senior Lecturer (Fire Safety Engineering)
e-mail: sndlovu@uclan.ac.uk Ext 3225 Room JBF010.

Kathryn Woolham O'Brien — BSc (hons) Ph. D. (Fire Service Incident Command, Naturalistic Decision Making and Sensemaking)
Lecturer (Fire Studies)

E-mail: kawoolhamobrien@uclan.ac.uk Ext 3557 Room JBF007

Jinghua Zhang BEng, MSc, PhD (Electrical Engineering and Electronics)
Senior Lecturer (Fire Safety Engineering)
E-mail: jzhang7@uclan.ac.uk Ext 5686 Room JBF003

All the above staff will be involved in delivering different elements of the BEng (Hons) Fire Engineering programme.

1.7 Expertise of staff

Each member of staff that will be teaching you has excellent theoretical and practical knowledge of the area. This has been attained by studying the subject, research into the area and/or with practical expertise gained within industry.

1.8 Academic Advisor

You will be assigned an Academic Advisor who will provide additional academic support during the year. They will be the first point of call for many of the questions that you might have during the year. Your Academic Advisor will be able to help you with personal development, including developing skills in self-awareness, reflection and action planning.

1.9 Administration details

Course Administration Service provides academic administration support for students and staff and are located in the following hubs which open from 8.45am until 5.15pm Monday to Thursday and until 4.00pm on Fridays. The hub can provide general assistance and advice regarding specific processes such as extenuating circumstances, extensions and appeals.

C&T HUB
Location: C&T Building Room 235
Schools: School of Art, Design and Fashion, School of Computing, School of Journalism, Media and Performance, School of Language and Global Studies, School of Engineering

Contact Details: **candthub@uclan.ac.uk** or +44 (0)1772 891994 or 891995

1.10 Communication

The University expects you to use your UCLan email address and check regularly for messages from staff. If you send us email messages from other addresses they risk being filtered out as potential spam and discarded unread.

There are Blackboard course level spaces available for both programmes. Within these areas will find documentation relating to your course – for

example student handbooks, support and advice regarding student placements and job hunting, along with other useful information.

It is important to keep all your contact details up to date as you may be contacted by post, email, or telephone.

1.11 External Examiner

The University has appointed two External Examiners to your course who help to ensure that the standards of your course are comparable to those provided at other higher education institutions in the UK. The names of these people, their positions and home institutions can be found below. If you wish to make contact with either of the External Examiners, you should do this through your Course Leader and not directly. You can access the external examiners report via the Course site on Blackboard. The School will also send a sample of student coursework to the external examiner(s) for external moderation purposes, once it has been marked and internally moderated by the course tutors. The sample will include work awarded the highest and lowest marks and awarded marks in the middle range.

Professor Jennifer Wen
Professor in Engineering
University of Warwick

Dr Philip Rubini
Reader in Thermo Fluids and Acoustics
University of Hull

External Examiner reports for the Engineering courses can be accessed electronically via the Blackboard pages.

2. Structure of the course
2.1 Overall structure

There is a foundation entry programme for this course. Please refer to the programme specification in the appendix of this document for more information on the modules of study.

Your degree is composed of modules, which can be full modules with a weighting of 1.0, half modules with a weighting of 0.5, or double modules with a weighting of 2.0. Typically, degree programmes consist of a mixture of half, full and (more rarely) double modules.

Modules are also given a credit weighting so that modules at different Universities can be compared, so 0.5 modules are worth 10 credits, 1.0 modules 20 credits and 2.0 modules 40 credits.

You will see modules described by their title and having a code number. The module code consists of two letters and a number, e.g. FV1001. The letters tell you which subject delivers the module (e.g. FV = Fire Safety Engineering, FZ = Forensic Science, CJ = Criminology) and the first digit is, for full-time students, the year of study (e.g. FV1001 is normally a first-year module).

Full time students will take the equivalent of six modules in each of the three years of their studies and part time students will take four and a half modules in each of their four years of study (6.0 modules or 120 credits at level 4 in year 1, 6.0 modules or 120 credits at level 5 in year 2, and 6.0 modules or 120 credits at level 6 in year 3).

Tables 1 and Table 2 below illustrate the programme structure for BEng (Hons) and MEng (Hons) Fire Engineering courses respectively. These courses exist as part of

the Modular Credit Accumulation and Transfer Scheme (MODCATS). The award requires that a student pass 360 credits total for BEng (Hons), or 480 credits for MEng (Hons).

Table 1a: BEng (Hons) Fire Engineering

Full Time

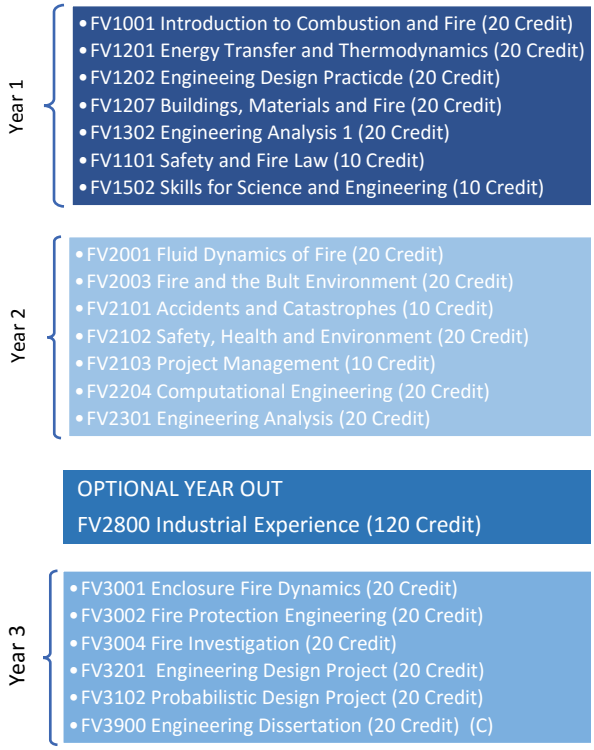


Table 1b: BEng (Hons) Fire Engineering

Part Time

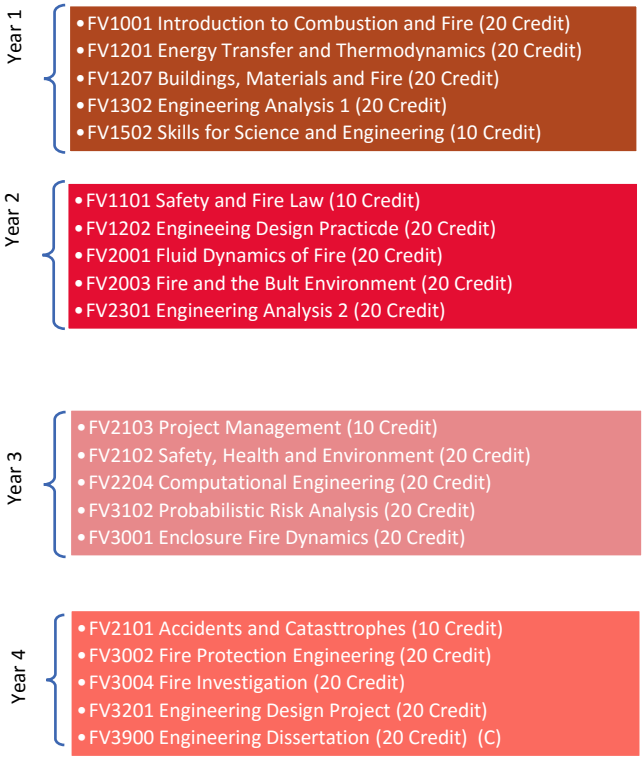


Table 2a: MEng (Hons) Fire Engineering

Full Time

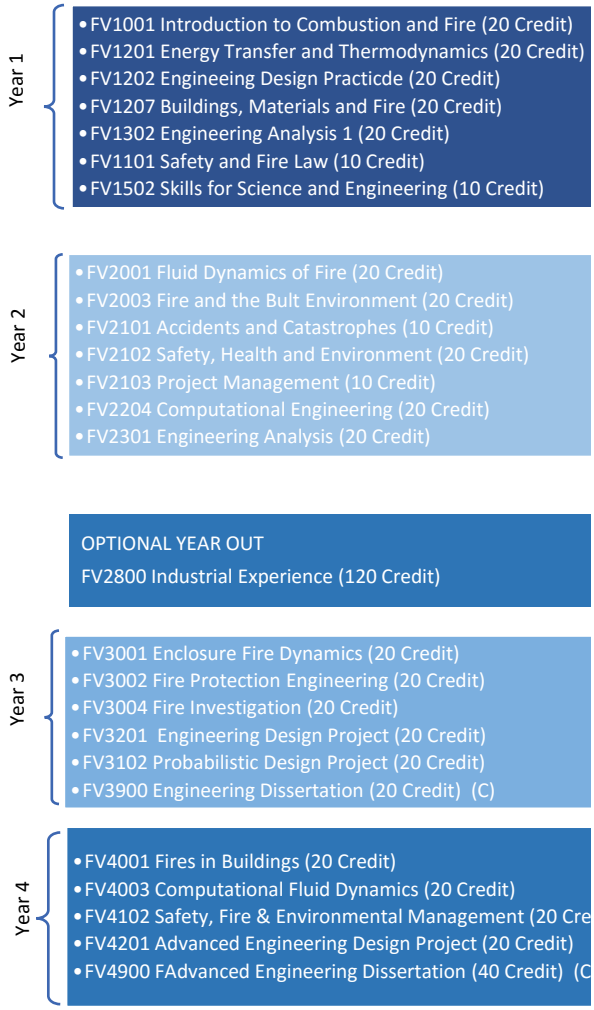
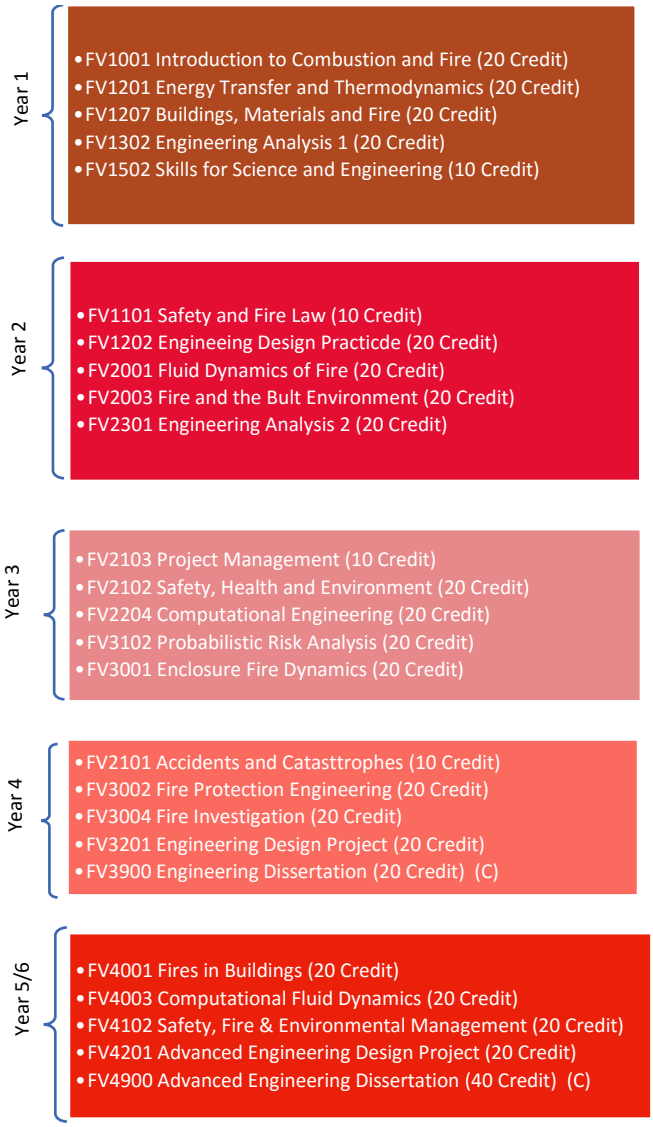


Table 2b: MEng (Hons) Fire Engineering

Part Time



2.2 Modules available

Each module is a self-contained block of learning with defined aims, learning outcomes and assessment. A standard module is worth 20 credits. It equates to the learning activity expected from one sixth of a full-time undergraduate year. Modules may be developed as half or double modules with credit allocated up to a maximum of 120 credits per module.

Level 4

Introduction to Combustion and Fire [FV1001]
This module introduces the learner to the fundamental scientific principles of combustion and fire. The primary goal is to provide students with general understanding and knowledge of combustion, fire and explosion phenomena. The main definitions, approaches and techniques developed in combustion and fire science and engineering are introduced to set the scene for the further in-depth studies through all other fire related modules in the Fire Curriculum. Alongside the introduction to fires and combustion, the module provides basic information and knowledge from related disciplines (chemical kinetics and thermodynamics, fluid dynamics, heat and mass transfer). This introduces all necessary elements, which are required to start a consistent further education in the diverse and multidisciplinary area of fire safety.

Safety and Fire Law [FV1101]
This module will provide a general understanding of the nature and extent of the legal system operating in the UK/HK. It will also provide the student with knowledge and understanding of the principles underlying safety law, the creation of the employment relationship, to include the rights and obligations of both parties.

Energy Transfer and Thermodynamics [FV1201]
This module introduces students the main principles of energy transfer, thermodynamics and fluid dynamics. The main definitions, approaches and techniques are introduced to set the scene for the further in-depth studies through all other energy related modules in the energy and fire safety engineering curriculum. Alongside the introduction to energy transfer and thermodynamics, the module provides basic information and knowledge from related disciplines (general physics, fluid dynamics, heat and mass transfer). This introduces all necessary elements, which are required to start a consistent further education in building and fire safety engineering.

Engineering Design Practice [FV1202]
The learning aims of this module are to introduce students to simple design in such a manner as to develop a scientific and analytical approach to the solution of environmental/safety control problems associated with the built environment.

Buildings, Materials and Fire [FV1207]
This module will introduce the student to the principles of construction methods used in small scale, low-rise construction in the United Kingdom. The module will also introduce the student to the less familiar forms of construction used and enable the student to focus study on the areas of construction technology of particular interest on their course.

Engineering Analysis 1 [FV1302]
To introduce basic maths concepts, to extend the student's range of mathematical concepts, develop basic techniques and apply them in the analysis and solution of common engineering problems.

Skills for Fire Studies [FV1502]
This module aims to enable the students to develop the mathematical, statistical, analytical, information technology, communication and research skills. This introduces all necessary elements, which are required to progress through the course.

Level 5

Fluid Dynamics of Fires [FV2001]
This module aims to enable the students to assimilate the fundamental principles underlying fluid flow and to apply these to flames, fires, and explosions. The module is designed to develop theoretical and practical themes introduced in Level 1. The aim of this module is to further improve qualitative understanding of combustion, fire and explosion phenomena and develop skills in their quantification.

Fire and the Built Environment [FV2003]
This module aims to develop an awareness and understanding of the impact of fires on the built environment, including building construction methods and materials used, smoke movement and control, law, regulations and standards. It explores different types of fire behaviour in the built environment. The module provides students with case studies of the impact of fires on buildings nationally (UK/HK) and internationally. Through the learning and teaching strategy, the module will also enhance students' employability skills such as independent working, analysis, problem solving, presentations and working with others.

Accidents and Catastrophes [FV2101]
This module aims to develop an awareness and understanding of accident and catastrophe phenomena and their impact on society. It explores different types of natural and technological accidents and catastrophes and their effect on the built environment. The module provides students with case studies of the impact of fires on buildings nationally (UK/HK) and internationally. Through the learning and teaching strategy, the module will also enhance students' employability skills such as independent working, analysis, problem solving, presentations and working with others.

Safety, Health and Environment [FV2102]
This module provides the principles and processes necessary for occupational health and safety in the workplace. It provides the basic principles necessary for the identification and control of hazards, the management of safety and health together with applicable legislation. The module also provides for practical inspection of workplaces.

Project Management [FV2103]
This module aims to focus on the role and responsibilities of the project manager, together with the leadership and organisation skills essential to the discharge of this function. The

application of the role of the professional project manager and associated analytical, monitoring and controlling techniques will be developed.

Computational Engineering [FV2204]
The primary goal is to provide fire engineering majors with fundamental knowledge and skills of using computing in fire hazard analysis. This includes both application of specialist software to solve typical computational problems of fire engineering and essential numerical programming skills required to carry out basic engineering computations within generic programming environments. FPETool, CFAST, and FDS are studied as the specialist software, and Scilab is the software environment used for implementation and application of the numerical methods for basic engineering computations.
The Scilab is a public domain clone of commercially available Matlab, which is, currently, the "de facto" standard software for engineering computations. This choice of the software will be permanently adjusted in order to match the hardware and other material resources available to the Department. The computational techniques learned in this course enable students to work with mathematical models of technology and systems. Assignments and projects in other courses in the Fire and Safety Engineering curriculum require the mathematical and numerical skills obtained in this course.

Engineering Analysis 2 [FV2301]
To establish fundamental mathematical skills and provide a framework of mathematical techniques with which to analyse engineering problems; thence to apply them in the analysis and solution of common engineering problems. Students are required to practice solving applied mathematical problems.

Industrial Experience [FV2800]
This module provides the context for the appraisal and assessment of student workplace performance over a minimum of 48 weeks in work experience in industry (one academic year). The module will provide a context for experiential learning for students, in order for them to place their academic programme of studies in the context of industrial practice. The module content is based upon the attainment of evidence of competence in nine areas of performance.

Level 6

Enclosure Fire Dynamics [FV3001]
This module aims to establish the students' competence in the understanding of enclosure fires and the dominant mechanisms controlling enclosure fires. The module enables to build a strong foundation for students upon knowledge gained in Level 1 and Level 2. A wide range of commonly used relationships, solutions and models are explained and interpreted to help in designing buildings for fire safety and fire investigations. Through the learning and teaching strategy, the module will also enhance students' employability skills such as independent working, analysis, problem solving, presentations and working with others.

Fire Protection Engineering [FV3002]
This module will look at the principles of fire protection, standard test procedures and methods of solving fire safety problems using active and passive fire safety systems. In particular the focus will be towards innovative/engineered solutions to fire safety problems. The module aims

to develop the student's skills of numerical analyses and critical evaluation in appropriate fire protection applications.

Fire Investigation [FV3004]
The module will develop a student's ability to undertake a scientific fire investigation of a fire scene while ensuring the requirements with respect to safety, scene preservation, evidence collection and presentation are fully achieved. The module will provide students with the detailed knowledge and practical experience of fire investigation. Areas covered will include recognition of causes of fire, laboratory analysis of fire debris, fire fatalities, and management of fire investigation.

Probabilistic Risk Analysis [FV3102]
This module aims to develop mainstream engineering analysis techniques for engineering students. The emphasis is in application to probabilistic risk modelling. The module will enhance students' skills of analysis, modelling and problem solving. Such mathematical methods are 'expected' across engineering programs throughout the world.

Engineering Design Project [FV3201]
This module is designed to provide students with the opportunity to extend and demonstrate engineering design skills both as team members and as individuals. The project will enable students to develop their critical thinking, problem solving and key skills in application to a case study example using appropriate tools of analysis and communication. The module acts as the vehicle for integrating the study themes of design, ICT and technology, in a practical context.

Fire Science Dissertation [FV3900]
This module aims to provide the students with the opportunity to develop independent research and evaluation skills. On an individual basis the student will be required to carry out an in-depth study involving theoretical, computational, experimental or investigative analysis, or a combination of these. Through the learning and teaching strategy, the module will also enhance students' employability skills such as written communication skills, independent planning, execution and dissemination of research outcomes.

Level 7

Fires in Buildings [FV4001]
This module aims to enable the students to understand the fundamental principles underlying fires in buildings, dominant mechanisms controlling spread of fires and fire development in enclosures and buildings, smoke movement and smoke control, fire resistance and fire severity, to characterize the stages of fire development, human behaviour in fires and evacuation, the mechanism of fire suppression agents.

Computational Fluid Dynamics [FV4003]
The module is designed to provide engineering and science majors with fundamental knowledge and skills of numerical studies of fluid flows. This includes multiphase and reacting flows and combustion. Deep understanding of both numerical and physical aspects of the subject is pursued.

Fire & Environmental Management [FV4102]The aim of this module is to provide an understanding of the health, welfare and safety legislation relevant to the construction, engineering and associated industries. Allowing students the opportunity to investigate and explore selected areas of certain environmental and safety laws in the context of their own specialism. Students will develop the ability to critically appraise safety systems and cultures in the management and control of safety and health with particular emphasis upon human factors and continuous improvement processes and demonstrate an understanding of how safety and environmental management is practiced in a project environment.

Advanced Engineering Design Project [FV4201]
The engineering design project module is designed to provide students with the opportunity to extend and demonstrate engineering design skills both as team members and as individuals. The project will enable students to develop their critical thinking, problem solving and key skills at the post graduate level. The module acts as the vehicle for integrating the study themes of design, ICT and technology, in a practical context.

Advanced Engineering Dissertation [FV4900]
This module will provide an opportunity for the students to develop independently their research skills and the ability to present a coherent, critical account of the work and how it relates to that of others. On an individual basis the student will be required to carry out an in-depth study involving theoretical, computational, experimental or investigative analysis, or a combination of these. Through the learning and teaching strategy, the module will also enhance students' employability skills such as written communication skills, independent planning, execution and dissemination of research outcomes.

2.3 Course requirements

BEng (Hons) Fire Engineering requires 360 credits including a minimum of 220 at level 5 or above and a minimum of 120 at level 6.
BEng (Hons) Fire Engineering with Industrial Placement requires 320 credits including a minimum of 60 at level 6 and 180 at level 5 or above, plus satisfactory completion of the Placement module FV2800.

MEng (Hons) Fire Engineering requires 480 credits with a minimum of 360 at level 5 or above, 200 at level 6 or above, 120 at level 7.
MEng (Hons) Fire Engineering with Industrial Placement requires 600 credits with a minimum of 240 at level 5 or above, 120 at level 6 or above.

2.4 Module Registration Options

Discussions about your progression through the course normally take place in February each year. It is an opportunity for you to make plans for your study over the next academic year. The course team will tell you about the various modules / combinations available and you will both agree on the most appropriate (and legal) course of study for you.

Tables 1 and 2 list the modules that form your course. The (C) denotes that a particular module is a core module that cannot be compensated. You need to pass these modules to achieve an award. You also need to pass the majority of modules within the course as they are normally the pre-requisites to qualify you for progression to the following year.

A student who has not passed any modules or has an average mark below 40% is normally recommended as fail/withdraw from programme.

Where a core module has not been passed after referral and repeat study then a student will either receive an exit award or counselling on the options to achieving an exit award.

The part time mode of study can be used to work alongside your studies or to repeat a module or modules. Changing to part study involves only a meeting with the course leader or academic advisor. It is the stage requirements that become more relevant during periods of part time study.

A request from a student to transfer between courses would result in a meeting with a member of the course team and a subsequent discussion with the course leader and then a decision on the transfer. The Engineering Council Institutions require that at least two years of study are completed at the Institution that awards a degree for IEng and CEng exemption. In addition entry to the course is usually from appropriate courses that are accredited by institutions within the Engineering Council.

Courses that are accredited by the EI/CIBSE satisfy the requirements of the UK Standard for Professional Engineering Competence (UK-SPEC), published by the Engineering Council on behalf of the UK engineering profession.

2.4.1 Transfers

BEng to MEng Transfer: All students wishing to transfer from the BEng to the MEng degree are required to satisfy the course team that the course can be satisfactorily completed. The process involves an interview with a member of the course team and an average mark of 60% or above from the modules of stage 1 and stage 2.1 of the course. The entry point is determined by the module profile.

MEng to BEng Transfer: Transfer from MEng to BEng might be made for a number of reasons including extenuating circumstances or poor academic performance. Academic performance would be considered at an examination board. The examination board would offer counselling, during which time a student would be offered the transfer.

Students applying for transfers from other Universities are required to complete the accreditation of certificated prior learning (ACPL). The UCLan regulations do not allow APL of more than ⅔ of the modules required for an award. The latest entry point for external applicants transferring into the courses is the second year. All applicants transferring into the BEng and MEng courses must have accredited prior certified learning.

2.5 Study Time

2.5.1 Weekly timetable

A timetable will be available once you have enrolled on the programme, through the student portal.

2.5.2 Expected hours of study

20 credits is a standard module size and equals 200 notional learning hours.

As outlined in the School Handbook the normal amount of work involved in achieving a successful outcome to your studies is to study for 10 hours per each credit you need to achieve – this includes attendance at UCLan and time spent in private study.

This translates to a total of 6 hours per 20 credit module per week. We expect that you commit 36 hours study per week (pro-rata for part-time students and/or semester-based modules), inclusive of your contact hours. So for a typical module you may have a 2 hour lecture, and a 1 hour tutorial, leaving you approximately 3 hours for self-directed study (further reading, tutorial questions, assignments, revision). This is thinking time – not coffee and biscuits time! Often you will be working in groups for practical work and you should try and arrange to meet up outside the scheduled class times. You will also need to use equipment such as computer and laboratory facilities for practical work, again sometimes outside the scheduled class times.

2.5.3 Attendance Requirements

You are required to attend all timetabled learning activities for each module. Notification of illness or exceptional requests for leave of absence must be made to:

C&T HUB:

☎ +44 1772 891994 | ✉ candthub@uclan.ac.uk

Exceptional absence requests are made to Jonathan Francis (Academic):

☎ +44 1772 893229 | jfrancis1@uclan.ac.uk

You are encouraged to seek the advice of your Academic advisor and/or Course Leader if your personal circumstances make it difficult to meet your study obligations.

3. Approaches to teaching and learning

3.1 Learning and teaching methods

Fire Engineering is concerned with the study of fire prevention, fire development and containment, fire dynamics, fire decay and suppression, hazards and risk assessment, and the means by which fire consequence may be minimised in human, environmental and financial terms. Consequently the subject matter covered is diverse and the School therefore uses a diverse portfolio of teaching and assessment methods to reflect the nature of this subject. There are formal lectures followed up by small group tutorials in which the subject of the lecture is explored in detail. Practical skills are developed through practical sessions which may incorporate stand-alone practical exercises or individual or group projects. You are also encouraged to engage in independent study. Most of the course is delivered by university staff but, where appropriate, experts in their own field are brought in to speak with authority from their own experience and expertise.

For some modules, you will also be studying along students on other courses, in particular students studying BSc (Hons) Fire and Leadership Studies and other courses in the School of Forensic and Investigative Sciences. This will also allow you to interact and learn from others with different backgrounds and expertise.

As with all university education ***you*** are responsible for your own learning; the lectures are merely the starting point and you will have to undertake a substantial amount of study in order to succeed.

The School has specialist teaching facilities such as fire laboratories and is also equipped with analytical facilities that include most modern scientific instrumental techniques.

The aim of the School is to promote deep and active learning and for the students to achieve an appropriate balance between (a) the accumulation of subject specific knowledge (b) the understanding of subject-specific concepts (c) the application of these and (d) the development of general investigative and presentational skills.

At Level 4 hour-long class sessions will normally be lectures or tutorials. In practice the lectures provide the theoretical background to the subject and tutorials often include problem solving exercises managed through pair or group work. The tutorials will also introduce you to the use of basic techniques and reinforce concepts introduced as theory. In addition tutorial work may also include the development of teamwork, planning, understanding accuracy and variability, and the generation and testing of hypotheses.

Modules at Level 5 and 6 will also be delivered via a mixture of teaching methods, with increased emphasis on independent study followed by discussions, presentations and data-interpretation/problem-solving exercises. A range of other skills will be developed, e.g. debating skills through discussions and oral presentations.

These learning experiences are designed to help you to master the many aspects of chemistry during the course of your degree, and are assessed through an equally wide range of exercises, designed to develop and improve your key skills (e.g. writing, referencing, report writing) as well as to assess your knowledge.

The assessment methods for the modules are different: some will be by examination, some by written assessment, presentations or a combination of these. For example, in the first year, coursework will include formats such as short notes, practical reports, structured workbooks, short directed essays, and data handling exercises, which will help to prepare you for longer essays, independent practical reports and practical examinations in the second year. The third year will include dissertation or a project report and use longer essays and more challenging data handling exercises. In terms of examinations, in the first year, multiple choice questions and short questions are the preferred format. In the second year, essay questions and data handling will be introduced; and the third year will comprise primarily longer essays, reports and more challenging analysis of data.

3.2 Study skills

There are a number of support mechanism to help develop he students academic and employability skills. Within the Fire Team we have research meetings where students can present as well as seminars from external sources where students can access future employers.

There are a variety of services to support students and these include

WISER http://www.uclan.ac.uk/students/study/wiser/index.php

CAREERS https://www.uclan.ac.uk/students/careers/index.php

3.3 Learning resources

3.3.1 Learning Information Services (LIS)

The university provides various resources to support your learning. These include general computing facilitates, the library, and study areas to name a few. In addition to the general resources available you also have access to specialist facilities that are specific to the School of Engineering. We have access to a dedicated fire laboratory where practical aspects can be taught. Students also have access to a computer modelling facility with higher spec computers allowing faster running of simulations.

3.3.2 Electronic Resources

LIS provide access to a huge range of electronic resources – e-journals and databases, e-books, images and texts.

Blackboard (our virtual learning environment) will be used on this course, here you will find notes and other important resources for your course. It is important that you check your blackboard areas on a regular basis for updates. 3.4 Personal development planning

Within your course you will develop skills outside of the core technical skills. These include personal development where you will reflect on your performance and actively engage to improve your skills. Skills in PDP such as self-reflection, recording, target setting, action planning and monitoring will be highlighted as key lead indicators of success in securing and successfully completing the Industrial Experience Period and in securing employment in the industry on graduation.

Over the duration of the course, and including reference to extra-curricular student activities, tutors will take formal responsibility for supporting students through their personal development in the following areas:

- Self Awareness
- Study Skills
- Reviewing Progress
- Career Plans
- Making Applications

For students who undertake the Industrial Experience module, the tutors for this module will also focus attention on PDP.

3.5 Preparing for your career

Your University experience is not only about achieving your chosen award, it is also about developing as a person and realising your potential. We want you to gain the skills and attitudes that will help you to achieve your goals and aspirations.

Your future is important to us, so to make sure that you achieve your full potential whilst at university and beyond, your course has been designed with employability learning integrated into it. This is not extra to your degree, but an important part of it which will help you to show future employers just how valuable your degree is. These “Employability Essentials” take you on a journey of development that will help you to write your own personal story of your time at university:

- To begin with, you will explore your identity, your likes and dislikes, the things that are important to you and what you want to get out of life.
- Later, you will investigate a range of options including jobs and work experience, postgraduate study and self- employment,
- You will then be ready to learn how to successfully tackle the recruitment process.

It’s your future: take charge of it!

Careers offers a range of support for you including:-

- Career and employability advice and guidance appointments
- Support to find work placements, internships, voluntary opportunities, part-time employment and live projects
- Workshops, seminars, modules, certificates and events to develop your skills

- Daily drop in service available from 09:00-17:00 for CV checks and initial careers information. For more information come along and visit the team (in Foster Building near the main entrance) or access our careers and employability resources via the Student Portal.

4. Student Support

The following section outlines any course specific support that is available whilst studying at UCLan.

4.1 Academic Advisors

Academic advisors provide help for students with problems and are responsible for overseeing the progress of students, their welfare, academic counselling and guidance. Your Academic advisor is allocated when you enrol. You must see your Academic advisor when requested and meet at least once per semester. Ensure they know you and have your current email address.

Please seek help relating to lecture material and practical classes from the module tutor in the first instance. If necessary make an appointment to seek additional support. Please remember that academic staff are busy people and may not be able to give you instant help.

Although Academic advisors and Course Leaders will deal with most of the day-to-day questions which arise, the Head of School is always willing to see students and an appointment can be made through the Student Hub. Advice relating to administrative issues may be obtained from the Student Hub.
The 'i' is a central Student Information Centre and your first point of contact. You can obtain information on a wide range of topics including Council Tax Exemption Certificates, Bank and Confirmation of Study Letters, Portable Financial Credits, (continuing students only, Printing and Printer Credit, UCLan Cards, the 'i' shop and UCLan Financial Support Bursary (first year students only).

4.2 Students with disabilities

If you have a disability that may affect your studies, please either contact the Disability Advisory Service - disability@uclan.ac.uk - or let one of the course team know as soon as possible. With your agreement information will be passed on to the Disability Advisory Service. The University will make reasonable adjustments to accommodate your needs and to provide appropriate support for you to complete your study successfully. Where necessary, you will be asked for evidence to help identify appropriate adjustments.

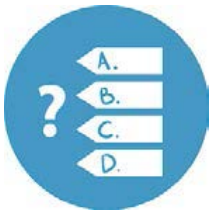
Assessment arrangements for students with a disability

Arrangements are made for students who have a disability/learning difficulty for which valid supporting evidence can be made available. Contact the Disability Adviser for advice and information, disability@uclan.ac.uk

4.3 Students' Union

The Students' Union offers thousands of volunteering opportunities ranging from representative to other leadership roles. We also advertise paid work and employ student staff on a variety of roles. You can find out more information on our website: http://www.uclansu.co.uk/

5. Assessment



5.1 Assessment Strategy

Please note that all modules will be assessed. You are expected to attempt all required assessments for each module for which you are registered, and to do so at the times scheduled unless authorised extensions, special arrangements for disability, or extenuating circumstances allow you to defer your assessment.

The Course Team recognise the main purpose of assessment as:

- The diagnosis of strengths and weaknesses of individual students
- Encouragement to students to be involved in determining their own performance
- Evaluation as to whether or not the student has met the learning outcomes of the module and the programme in order to progress to the next level or achieve an exit award

Assessment is continuous and uses both formative and summative methods. Formative assessment relates to the continuing and systematic appraisal of the degree of learning. This helps you by providing feedback on the appropriateness of your study skills in meeting the learning objectives. It also assists the academic staff by providing information about the appropriateness of the learning environment in facilitating student learning. Formative assessment includes strategies that encourage you and your tutor to build on our strengths and to plan remedial help to correct identified weaknesses. Formative assessment encourages the development of personal self-awareness and self-evaluation such that corrective change can be instigated by the individual.

5.2 Notification of assignments and examination arrangements

You will be notified of assessments by your module tutors. They will advise you of the requirements, the marking criteria and of the respective submission dates or exam arrangements, during one or more of the timetabled sessions. In general the examination arrangements are available from the University web site. These arrangements are not generally made by the module tutors.

Submission of coursework assignments is typically by one of two methods details of which will be given in the assignment brief. Electronic submissions are made through the Blackboard site for the module, using the Turnitin software.

5.3 Referencing

Referencing is very important in all academic work (and in many jobs). In your assignments (eg *written work, presentations, posters, projects*), you must acknowledge the thoughts, ideas and information produced by other people which have influenced your own work. This topic tells you how to do this correctly.

There are two main ways of referencing that are used throughout the school. Your module tutor may have a preferred system and if you have any doubts ask them. Generally as long

as you adopt one of the standards and use it consistently and correctly you will not be penalised.

The Numeric System

The numeric system simply gives a running number to each citation as it is mentioned in the text, then lists the references numerically at the end. At every point in the text where the reference is made, a number is inserted, either in brackets or using 'superscript'.

e.g. *In a recent study (26) it was shown.....*

In a recent study[26] *it was shown....*

Each reference number points to a single reference only and if the same piece of work is referred to again later in the text it is given the same number as it was originally.

The references are given in a list at the end of the text in numerical order. Instead of repeating complete references, *ibid.* and *op.cit.* can be used:

ibid. = the same as the one immediately preceding it

op. cit. = the same work by this author already cited

e.g.

1. Mullins, Laurie J. *Management and organisational behaviour.* London: Pitman, 1999, p.27

2. ibid., p.105

3. Harrison, Rosemary. *Employee development*. London: Institute of Personnel and Development, 1992, p164

4. Watson, Tony J. *In search of management*. London: Routledge, 1994

5. Harrison, op. cit., p.89

The Harvard System

In the Harvard system, at every point in the text at which reference is made to a document, the author's surname and the year of publication are given.

A direct quote is referenced by including the author, date and page number (NOT the title of the book or article) at the end of it.

Paraphrasing is referenced by putting the author and date (NOT title or page number) in brackets at the end of the sentence but before the full stop.

However if it's a very long sentence you might find that you feel it more appropriate to put the citation right after the thing you attribute to them rather than at the end of the sentence.

Sometimes you might attribute a concept to more than one publication in which case they all need to be included in date order (Gamble 1989; Mellars 1996). If there are two authors of one paper it's usual to give both names, if more than two you can put the first author followed by the abbreviation *et al*., which is short for "and the rest of them" (Stringer and Gamble 1993; Adcock *et al*. 2001). You must write out all the authors' names in the bibliography even if you use "*et al*." in the text citation. If your list of citations includes two items published in the same year you should put them in alphabetical order and if two items are by the same person, you put their name once and dates of publications in date order separated by commas.

When the same author has published more than one cited document in the same year, distinguish between them by adding a lower-case letter after the year of publication (Handy 1989a).

The references are cited in a list at the end of the text and need to include, in this order: Author surname, initial, date, title, source (whether that be place and publisher [of a book] or the title, issue number etc (of a journal), The title of the book, or of the journal where an article appeared, are italicised. Second and subsequent authors have the initial before the surname: -

In addition to the citations in the text you must give a full reference to anything you have used at the end of the essay. There should not be any names in the citations in the text that do not appear in the reference list as full references. You can put additional things in the bibliography – books you used for general background but which you didn't have need to cite in the text.

Adcock, G.J., E.S. Dennis, S. Easteal, G.A. Huttley, L.S. Jermiin, W.J. Peacock and A. Thorne 2001. Mitochondrial DNA sequences in ancient Australians: Implications for modern human origins. *Proceedings of the National Academy of Sciences* 98 (2): 537-542.

The default referencing is the Harvard referencing system (a guide to this system can be found on the Engineering@UCLan course space, accessed through the student portal). Please use this unless you are directed differently within your assignment brief.

5.4 Confidential material

Guidance on confidential information and ethical guidelines will be provided by the Dissertation module leader and within the module information pack.

5.5 Cheating, plagiarism, collusion or re-presentation

Please refer to the information included in section 6.6 of the University Student Handbook for full definitions. The University uses an online Assessment Tool called Turnitin. A pseudo-Turnitin assignment will be set up using the School space on Blackboard to allow students to check as many drafts as the system allows before their final submission to the 'official' Turnitin assignment. Students are required to self-submit their own assignment on Turnitin and will be given access to the Originality Reports arising from each submission. In operating Turnitin, Schools must take steps to ensure that the University's requirement for all summative assessment to be marked anonymously is not undermined and therefore Turnitin reports should either be anonymised or considered separately from marking. Turnitin may also be used to assist with plagiarism detection and collusion, where there is suspicion about individual piece(s) of work.

6. Classification of Awards

The University publishes the principles underpinning the way in which awards and results are decided in Academic Regulations. Decisions about the overall classification of awards are made by Assessment Boards through the application of the academic and relevant course regulations.

7. Student Feedback

You can play an important part in the process of improving the quality of this course through the feedback you give.

The course team encourage student feedback in all areas and recognise that additional items for discussion may also be raised at the meeting

•Update on actions completed since the last meeting

•Feedback about the previous year – discussion of external examiner's report; outcomes of National /UCLan student surveys.

•Review of enrolment / induction experience;

•Course organisation and management (from each individual year group, and the course overall);

•Experience of modules - teaching, assessment, feedback;

•Experience of academic support which may include e.g. Personal Development Planning, academic advisor arrangements and The Card;

•Other aspects of University life relevant to student experience e.g. learning resources, IT, library;

•Any other issues raised by students or staff.

7.1 Student Staff Liaison Committee meetings (SSLCs)

Details of the Protocol for the operation of SSLCs is included in section 8.2 of the University Student Handbook.

8. Appendices

8.1 Programme Specification(s)

Appendix 1 - Programme Specification for BEng(Hons) Fire Engineering

Appendix 2 - Programme Specification for MEng(Hons) Fire Engineering

Appendix 3 – Programme Specification for Foundation Entry year.

UNIVERSITY OF CENTRAL LANCASHIRE

Programme Specification
This Programme 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.

Sources of information on the programme can be found in Section 17

1. Awarding Institution / Body	University of Central Lancashire
2. Teaching Institution and Location of Delivery	University of Central Lancashire (Main Campus) School of Continuing and Professional Education, Hong Kong City University (SCOPE, HKCityU)
3. University School/ Centre	Forensic and Investigative Sciences
4. External Accreditation	Energy Institute (EI), Chartered Institution of Building Services Engineers (CIBSE) and Institution of Fire Engineers (IFE)
5. Title of Final Award	BEng (Hons) Fire Engineering
6. Modes of Attendance offered	Full-time, Part-time and Sandwich (UK only)
7. UCAS Code	H862
8. Relevant Subject Benchmarking Group(s)	Engineering
9. Other external influences	Institution of Fire Engineers
10. Date of production/revision of this form	June 2013 Updated July 2015

11. Aims of the Programme

- Prepare students with the necessary scientific, engineering and technological principles and tools to resolve complex design problems in fire and fire safety applications.
- Develop a suitable understanding and application of management skills, including team working, leadership and organisation to implement strategies to resolve engineering design problems and projects.
- Develop an expertise in the application of health and safety management systems to resolve problems, implement safe design solutions and to ensure safe working environments.
- Develop the use of appropriate analytical and computational methods in the study of fires and the resolution of fire engineering problems for the built environment and related infrastructure.
- Provide an understanding and application of the legal principles as they impact upon the study of fires and fire safety, including design, project control and implementation.
- Develop safe building designs, taking account of the influences and implications of human behaviour in fires.

12. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A1. Demonstrate an understanding of the key principles of all relevant scientific and engineering aspects relating to fires and combustion and their applications to the study of fire engineering for the built environment using simulated scenarios and actual case studies;
A2. Demonstrate an understanding of the design, operation and performance of technological design solutions to achieve fire safety in built structures;
A3. Demonstrate and critically evaluate the use of appropriate strategies for the application of fire engineered solutions;
A4. Describe the interrelationships between the professional inputs into fire engineering and fire engineered project solutions with respect to applicable managerial, legal and social parameters.

Teaching and Learning Methods

Traditional Lectures often followed by directed self study; Seminars/tutorials; Laboratory activities; Lectures and demonstrations from practising professionals; Project and investigative work; Group discussions.

Assessment methods

Written assessments; Examinations; Technical Reports; Case study/Scenario based analysis.

B. Subject-specific skills

B1. Generate ideas, proposals and solutions or arguments independently and/or collaboratively in response to set scenarios and/or self initiated activity;
B2. Evaluate whether design solutions integrate social, legal, engineering and technical requirements;
B3. Identify appropriate design and governance problems and formulate clear objectives using analytical data and I&CT software as appropriate;
B4. Develop design briefs with clarity graphically and/or in written specifications;
B5. Demonstrate ability in independent planning and execution of a research project in fire engineering

Teaching and Learning Methods

Traditional Lectures often followed by directed self study; Seminars/tutorials; Laboratory activities; Practical/Competency based activities; Lectures and demonstrations from practising professionals; Directed project and investigative work both individually and in groups; Group discussions.

Assessment methods

Group and individual presentations; Mini projects; Reports; Examinations; Assignments; Laboratory investigations; Case study/Scenario based analysis.

C. Thinking Skills

C1. Evaluate the concepts, values and debates which inform study and practice in fire engineering;
C2. Employ appropriate problem solution skills, as appropriate, in the processes of analysis, synthesis, evaluation and summarization of ideas and information and the proposal of solutions;
C3. Debate in a rational manner future strategies and proposals for the resolution of fire safety problems, design and project management solutions in a changing social environment.

Teaching and Learning Methods

Traditional Lectures often followed by directed self study; Seminars/tutorials; Laboratory activities; Lectures and demonstrations from practising professionals; Directed project and investigative work both individually and in groups; Group discussions.

Assessment methods

Written assessments; Integrated assignments; Examinations; Technical Reports; Presentations; Case study/Scenario based analysis

D. Other skills relevant to employability and personal development

D1. Prepare and present arguments and illustrative materials in a variety of formats.
D2. Demonstrate literacy and information sourcing and retrieval skills.
D3. Use CAE literacy including CFD modelling.
D4. Demonstrate communication skills in a variety of formats.
D5. Demonstrate self reliance, time management, the capacity for independent learning and the ability to work effectively with others in the context of a team;
D6. Demonstrate negotiation skills and skills in listening and evaluating the opinions and values of others.

Teaching and Learning Methods

Traditional Lectures often followed by directed self study; Seminars/tutorials; Laboratory activities; Practical/Competency based activities; Lectures and demonstrations from practising professionals; Directed project and investigative work both individually and in groups; Group discussions.

Assessment methods

Reports, Presentations, Working in teams, Integrated assignments, Mini projects.

13. Programme Structures				**14. Awards and Credits**
Level	**Module Code**	**Module Title**	**Credit rating**	
Level 6	FV3001 FV3002 FV3004 FV3102 FV3201 FV3900	Enclosure Fire Dynamics Fire Protection Engineering Fire Investigation Probabilistic Risk Analysis Engineering Design Project Engineering Dissertation	20 20 20 20 20 20	**BEng (Hons) Fire Engineering** Requires 360 credits including a minimum of 220 at Level 5 or above and 120 at Level 6 **BEng (Hons) Fire Engineering (Sandwich)** Requires 480 credits including a minimum of 120 at level 6 and 240 at level 5. **BSc Fire Engineering** Requires 320 credits including a minimum of 60 at Level 6 and 180 at Level 5 or above. Note that the professional body requires that the APM for the BEng (Hons) is based on all 6 level 6 modules.
Level 5	FV2001 FV2003 FV2101 FV2102 FV2103 FV2204 FV2301 FV2800	Fluid Dynamics of Fire Fire and the Built Environment Accidents and Catastrophes Safety, Health and Environment Project Management Computational Engineering Engineering Analysis 2 Industrial Experience	20 20 10 20 10 20 20 120	**Diploma of Higher Education in Fire Engineering** Requires 240 credits including a minimum of 120 at Level 5 or above

Level 4	FV1001 FV1101 FV1201 FV1202 FV1207 FV1302 FV1502	Introduction to Combustion and Fire Safety and Fire Law Energy Transfer and Thermodynamics Engineering Design Practice Buildings, Materials and Fire Engineering Analysis 1 Skills for Science and Engineering	20 10 20 20 20 20 10	**Certificate of Higher Education in Fire Science** Requires 120 credits at Level 4 or above

15. Personal Development Planning

The modules at each level provide students with the opportunity to engage with their own personal development planning and to recognise that learning is a lifelong process.

Following appropriate introduction and induction, the Course Team will support students in reflecting on their learning, performance and achievement, and in their planning for personal, educational, and career development.
Skills in PDP such as self-reflection, recording, target setting, action planning and monitoring will be highlighted as key lead indicators of success in securing and successfully completing the Industrial Experience Period and in securing employment in the industry on graduation.

Over the duration of the course, and including reference to extra-curricular student activities, Module Tutors for Communications and Academic advisors will take formal responsibility for supporting students through their personal development in the following areas:

- Self Awareness
- Study Skills
- Reviewing Progress
- Career Plans
- Making Applications

For students who undertake the Industrial Experience module, the tutors for this module will also focus attention on PDP.

Web based resource materials to be used include:
Personal Development Planning www.uclan.ac.uk/ldu/resources/pdp/intro1.htm
Skills Learning Resources www.uclan.ac.uk/lskills/TLTP3/entersite.html

The work in PDP will not be assessed.

16. Admissions criteria

Applicants normally will be required to have, one of:

BCC at A2 including Mathematics OR Science subject (Physics, Chemistry, Environmental Science) Biology not accepted. Relevant ND DMM. IB - 24P including Maths or Science at grade 5.

In addition applicants will be required to have Maths and English GCSE at Grade C or equivalent.

Applicants will be required to have a minimum level of proficiency in English Language equivalent to IELTS grade 6 with no subscore lower than 5.5

Applications from individuals with non-standard qualifications, relevant work or life experience and who can demonstrate the ability to cope with and benefit from degree-level studies are welcome. If candidates have not studied recently they may be required to undertake an Access programme. APL/APEL will be assessed through standard University procedures.

Please consult the UCLAN admissions department for the most up to date requirements.

17. Key sources of information about the programme
• University web site (www.uclan.ac.uk)
• UCAS web site (www.ucas.ac.uk)
• School website (www.uclan.ac.uk/forensic)
• Course Leader
• Admissions tutor

18. Curriculum Skills Map

	Module Code	Module Title	Core (C), Compulsory (COMP) or Option (O)	Programme Learning Outcomes																	
				Knowledge & Understanding				Subject-specific Skills					Thinking Skills			Other skills relevant to employability and personal development					
				A1	A2	A3	A4	B1	B2	B3	B4	B5	C1	C2	C3	D1	D2	D3	D4	D5	D6
LEVEL 6	FV3001	Enclosure Fire Dynamics	COMP	✓			✓							✓				✓			
	FV3002	Fire Protection Engineering	COMP	✓	✓			✓	✓				✓		✓						✓
	FV3004	Fire Investigation	COMP	✓									✓	✓		✓	✓		✓	✓	
	FV3102	Probabilistic Risk Analysis	COMP	✓					✓					✓							
	FV3112	Probabilistic Risk Assessment	O	✓					✓					✓							
	FV3201	Engineering Design Project	COMP		✓	✓	✓	✓	✓		✓		✓			✓	✓		✓	✓	✓
	FV3900	Engineering Dissertation	C			✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
LEVEL 5	FV2001	Fluid Dynamics of Fire	COMP	✓										✓				✓			
	FV2003	Fire and the Built Environment	COMP	✓										✓			✓				
	FV2101	Accidents and Catastrophes	COMP	✓									✓				✓		✓		
	FV2102	Safety, Health and Environment	COMP		✓		✓		✓				✓								✓
	FV2103	Project Management	COMP		✓		✓	✓		✓						✓		✓		✓	
	FV2204	Computational Engineering	COMP	✓										✓				✓			
	FV2301	Engineering Analysis 2	COMP	✓										✓					✓		
	FV2800	Industrial Experience	O				✓													✓	
LEVEL 4	FV1001	Introduction to Combustion and Fire	COMP	✓									✓	✓							
	FV1101	Safety and Fire Law	COMP		✓		✓	✓												✓	✓
	FV1201	Energy Transfer and Thermodynamics	COMP	✓									✓	✓							
	FV1202	Engineering Design Practice	COMP		✓		✓		✓		✓							✓		✓	✓
	FV1207	Buildings, Materials and Fire	COMP		✓								✓								
	FV1302	Engineering Analysis 1	COMP	✓									✓								
	FV1502	Skills for Science and Engineering	COMP								✓					✓	✓	✓	✓		

Note: *Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course Handbooks*

UNIVERSITY OF CENTRAL LANCASHIRE

Programme Specification

This Programme 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.

Sources of information on the programme can be found in Section 17

5. Awarding Institution / Body	University of Central Lancashire
6. Teaching Institution and Location of Delivery	University of Central Lancashire (Main Campus) School of Continuing and Professional Education, Hong Kong City University (SCOPE, HKCityU)
7. University School/Centre	Forensic and Investigative Sciences
8. External Accreditation	Energy Institute (EI) and Chartered Institution of Building Services Engineers (CIBSE)
9. Title of Final Award	MEng Fire Engineering
10. Modes of Attendance offered	Full-time, Part-time and Sandwich (UK only)
11. UCAS Code	H12C
12. Relevant Subject Benchmarking Group(s)	Engineering
13. Other external influences	Institution of Fire Engineers
14. Date of production/revision of this form	May 2011 Updated July 2015

15. Aims of the Programme

- Prepare students with the necessary scientific, engineering and technological principles and tools to resolve complex design problems in fire and fire safety applications individually and as part of a team.
- Develop an in-depth understanding and application of management skills, including team working, leadership and organisation to implement strategies to resolve engineering design problems and projects.
- Develop an expertise in the application of health and safety management systems to resolve problems, implement safe design solutions and to ensure safe working environments.

- Develop the use of appropriate analytical and computational methods in the study of fires and the resolution of fire engineering problems for the built environment and related infrastructure.
- Provide an in-depth understanding and application of the legal principles as they impact upon the study of fires and fire safety, including design, project control and implementation.
- Develop safe building designs, individually and as part of a team, taking account of the influences and implications of human behaviour in fires.

16. Learning Outcomes, Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

A5. Demonstrate an understanding of the key principles of all relevant scientific and engineering aspects relating to fires and combustion and their applications to the study of fire engineering for the built environment using simulated scenarios and actual case studies;
A6. Demonstrate an understanding of design, operation and performance of technological design solutions to achieve fire safety in built structures;
A7. Demonstrate and critically evaluate the use of appropriate strategies for the application of fire engineered solutions;
A8. Describe the interrelationships between the professional inputs into fire engineering and fire engineered project solutions with respect to applicable managerial, legal and social parameters.
A9. Apply managerial, legal and social principles of solution of fire engineering problems.

Teaching and Learning Methods

Formal lectures, group discussion and project simulation when studying the compulsory modules. Project management is embedded within the simulation by organising team approach to task from briefing to design solution, including analysis and synthesis of technical issues and evaluation of social, legal, economic and managerial issues that impact upon a project.

Assessment methods

A variety of assessment methods including individual written assignments (including in the dissertation module where students submit project proposals and reflect on the process that allowed them to do so), and other project submissions and presentations (e.g. dissertation in which a reflection upon the methodology is part of the analysis expected).

B. Subject-specific skills

B6. Generate ideas, proposals and solutions or arguments independently and/or collaboratively in response to set scenarios and/or self initiated activity;
B7. Evaluate whether design solutions integrate social, legal, engineering and technical requirements;
B8. Identify appropriate design and governance problems and formulate clear objectives using analytical data and I&CT software as appropriate;
B9. Develop design briefs with clarity graphically and/or in written specifications;
B10. Demonstrate ability in independent planning and execution of a research project in fire engineering
B11. Identify appropriate design and governance problems and formulate clear objectives using CFD software
B12. Implement proposals and solutions, independently and/or collaboratively in response to set scenarios and/or self initiated activity involving fire engineering and building services solutions

Teaching and Learning Methods

Lectures, tutorials and seminars, laboratory classes with workbook or practical manuals; safe working practices described. Preparation of laboratory reports and interpretation of other data. The most appropriate methods will be used dependent on module.

Assessment methods

Practical reports, laboratory notebooks, data interpretation, and report writing and a viva voce. Details dependent on module.

C. Thinking Skills

C1. Evaluate the concepts, values and debates which inform study and practice in fire engineering;
C2. Employ appropriate problem solution skills, as appropriate, in the processes of analysis, synthesis, evaluation and summarisation of ideas and information and the proposal of solutions;
C3. Debate, in a rational manner, future strategies and proposals for the resolution of fire safety problems, design and project management solutions in a changing social environment.
C4. Critically evaluate solutions to problems provided by others.
C5. Appraise and employ appropriate business, legal, social, cultural, environmental issues for fire safety engineering.

Teaching and Learning Methods

Skills developed through lectures, data interpretation, case studies, practical work, research project, presentations, problem solving. The most appropriate methods will be used dependent on module.

Assessment methods

Workbooks, preparation of short notes, essays, reports, practical reports, group and individual presentations, a viva voce and end of module seen and unseen examinations. Details dependent on module.

D. Other skills relevant to employability and personal development

D1. Prepare and present arguments and illustrative materials in a variety of formats;
D2. Demonstrate literacy and information sourcing and retrieval skills;
D3. Use CAE literacy including CFD modelling;
D4. Demonstrate communication skills in a variety of formats;
D5. Demonstrate self reliance, time management, the capacity for independent learning and the ability to work effectively with others in the context of a team;
D6. Demonstrate negotiation skills and skills in listening and evaluating the opinions and values of others;
D7. Demonstrate the ability to communicate and present critical arguments to a range of audiences

Teaching and Learning Methods

Discussions and presentations; numeracy and statistics in association with practical work; IT through coursework; teamwork through class work in tutorials, case studies and problem solving. The most appropriate methods will be used dependent on module.

Assessment methods

Written reports, oral presentations, word processed documents, PowerPoint presentations, data analysis and presentation, collating information from various sources, group projects and presentations; individual presentations and a viva voce. Details dependent on module.

13. Programme Structures*

Level	Module Code	Module Title	Credit rating
Level 7	FV4001	Fires in Buildings	20
	FV4003	Computational Fluid Dynamics	20
	FV4102	Safety, Fire and Environmental Management	20
	FV4201	Advanced Engineering Design Project	20
	FV4900	Advanced Engineering Dissertation	40

14. Awards and Credits*

MEng Fire Engineering
Requires 480 credits including a minimum of 120 at Level 7 or above and 200 at Level 6 or above and 360 at level 5 or above.

MEng Fire Engineering (Sandwich)
Requires 600 credits including a minimum of 120 at level 6 and 240 at level 5.

Level 6	FV3001 FV3002 FV3004 FV3102 FV3201 FV3900	Enclosure Fire Dynamics Fire Protection Engineering Fire Investigation Probabilistic Risk Analysis Engineering Design Project Engineering Dissertation	20 20 20 20 20 20	**BEng (Hons) Fire Engineering** Requires 360 credits including a minimum of 120 at Level 6 and 220 at Level 5 or above **BEng (Hons) Fire Engineering (Sandwich)** Requires 480 credits including a minimum of 120 at level 6 and 240 at level 5 or above. **BSc Fire Engineering** Requires 320 credits including a minimum of 60 at Level 6 and 180 at Level 5 or above. Note that the professional body requires that the APM for the BEng (Hons) is based on all 6 level 6 modules.
Level 5	FV2001 FV2003 FV2101 FV2102 FV2103 FV2204 FV2301 FV2800	Fluid Dynamics of Fire Fire and the Built Environment Accidents and Catastrophes Safety, Health and Environmental Management Project Management Computational Engineering Engineering Analysis 2 Industrial Experience	20 20 10 20 10 20 20 120	**Diploma of Higher Education in Fire Engineering** Requires 240 credits including a minimum of 120 at Level 5 or above
Level 4	FV1001 FV1101 FV1201 FV1202 FV1207 FV1302 FV1502	Introduction to Combustion and Fire Safety and Fire Law Energy Transfer and Thermodynamics Engineering Design Practice Buildings, Materials and Fire Engineering Analysis 1 Skills for Fire Studies	20 10 20 20 20 20 10	**Certificate of Higher Education in Fire Science** Requires 120 credits at Level 4 or above

15. Personal Development Planning

The modules at each level provide students with the opportunity to engage with their own personal development planning and to recognise that learning is a lifelong process.

Following appropriate introduction and induction, the Course Team will support students in reflecting on their learning, performance and achievement, and in their planning for personal, educational, and career development.
Skills in PDP such as self-reflection, recording, target setting, action planning and monitoring will be highlighted as key lead indicators of success in securing and successfully completing the Industrial Experience Period and in securing employment in the industry on graduation.

Over the duration of the course, and including reference to extra-curricular student activities, Module Tutors for Communications and Academic advisors will take formal responsibility for supporting students through their personal development in the following areas:

- Self Awareness
- Study Skills
- Reviewing Progress
- Career Plans
- Making Applications

For students who undertake the Industrial Experience module, the tutors for this module will also focus attention on PDP.

Web based resource materials to be used include:
Personal Development Planning www.uclan.ac.uk/ldu/resources/pdp/intro1.htm
Skills Learning Resources www.uclan.ac.uk/lskills/TLTP3/entersite.html

The work in PDP will not be assessed.

16. Admissions criteria

Applicants will normally be required to have, one of:

BCC at A2, including Mathematics OR Science subject, Relevant ND DMM. IB - 24P including Maths or Science at grade 5.

In addition applicants will be required to have Maths and English GCSE at Grade C or equivalent.

Applicants will be required to have a minimum level of proficiency in English Language equivalent to IELTS grade 6 with no subscore lower than 5.5

Applications from individuals with non-standard qualifications, relevant work or life experience and who can demonstrate the ability to cope with and benefit from degree-level studies are welcome. If candidates have not studied recently they may be required to undertake an Access programme. APL/APEL will be assessed through standard University procedures.

Please consult the UCLAN admissions department for the most up to date requirements.

17. Key sources of information about the programme

- University web site (www.uclan.ac.uk)
- UCAS web site (www.ucas.ac.uk)
- School website (www.uclan.ac.uk/forensic)
- Course Leader
- Admissions tutor

18. Curriculum Skills Map

	Module Code	Module Title	Core (C), Compulsory (COMP) or Option (O)	Programme Learning Outcomes																						
				Knowledge & Understanding					Subject-specific Skills							Thinking Skills					Other skills relevant to employability and personal development						
				A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	C5	D1	D2	D3	D4	D5	D6	D7
LEVEL 7	FV4001	Fires in Buildings	COMP	✓			✓			✓							✓						✓				
	FV4003	Computational Fluid Dynamics	COMP	✓			✓	✓						✓			✓						✓				
	FV4102	Safety, Fire and Environmental Management	COMP		✓		✓			✓						✓			✓	✓	✓					✓	
	FV4201	Advanced Engineering Design Project	COMP		✓	✓	✓	✓	✓	✓		✓			✓	✓			✓	✓	✓	✓		✓	✓	✓	✓
	FV4900	Advanced Engineering Dissertation	C	✓			✓	✓	✓		✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
LEVEL 6	FV3001	Enclosure Fire Dynamics	COMP	✓			✓										✓						✓				
	FV3002	Fire Protection Engineering	COMP	✓	✓				✓	✓						✓		✓								✓	
	FV3004	Fire Investigation	COMP	✓												✓	✓				✓	✓		✓	✓		
	FV3102	Probabilistic Risk Analysis	COMP	✓						✓							✓										
	FV3201	Engineering Design Project	COMP		✓	✓	✓		✓	✓		✓				✓					✓	✓		✓	✓	✓	
	FV3900	Engineering Dissertation	C			✓	✓		✓		✓		✓			✓	✓	✓			✓	✓	✓	✓	✓		
	FV2001	Fluid Dynamics of Fire	COMP	✓													✓						✓				

LEVEL 5	FV2003	Fire and the Built Environment	COMP	✓													✓					✓					
	FV2101	Accidents and Catastrophes	COMP	✓												✓						✓		✓			
	FV2102	Safety, Health and Environmental Management	COMP		✓		✓			✓						✓										✓	
	FV2103	Project Management	COMP		✓		✓		✓		✓										✓		✓		✓			
	FV2204	Computational Engineering	COMP	✓													✓						✓				
	FV2301	Engineering Analysis 2	COMP	✓													✓							✓			
	FV2800	Industrial Experience	O				✓																		✓		
LEVEL 4	FV1001	Introduction to Combustion and Fire	COMP	✓												✓	✓										
	FV1101	Safety and Fire Law	COMP		✓		✓		✓																✓	✓	
	FV1201	Energy Transfer and Thermodynamics	COMP	✓												✓	✓										
	FV1202	Engineering Design Practice	COMP		✓		✓			✓		✓											✓		✓	✓	
	FV1207	Buildings, Materials and Fire	COMP		✓											✓											
	FV1302	Engineering Analysis 1	COMP	✓												✓											
	FV1502	Skills for Fire Studies	COMP									✓									✓	✓	✓	✓			

Note: *Mapping to other external frameworks, e.g. professional/statutory bodies, will be included within Student Course Handbooks*

UNIVERSITY OF CENTRAL LANCASHIRE

Programme Specification

1. Awarding Institution / Body	University of Central Lancashire
2. Teaching Institution and Location of Delivery	University of Central Lancashire Preston campus
3. University School	School of Engineering
4. External Accreditation	N/A
5. Title of Final Award	MEng (Hons) / BEng (Hons) / BSc (Hons) Engineering (Foundation Entry) (non-award bearing programme: initial stage of 5-year (MEng) or 4-year (BEng / BSc) degree course)
6. Modes of Attendance offered	Full-time / Part-Time *Note that part-time attendance mode is not guaranteed to be one day per week.*
7. UCAS Code	TBD
8. Relevant Subject Benchmarking Group(s)	QAA Subject Benchmarking Statements: Engineering (2015), and Construction, Property & Surveying (2008).

	Note that the QAA SBSs mainly focus on Bachelor's degree with honours level and Master's level, and so are informative rather than directly applicable to this Foundation Year Entry course.
9. Other external influences	Engineering Council UK-SPEC QAA
10. Date of production/revision of this form	4 May 2016
11. Aims of the Programme	
• **To equip the student with a broad range of subject-specific and transferable skills that will enable progression to a range of undergraduate honours programmes (BSc / BEng / MEng) within the School of Engineering, most of which lead to awards with Professional Accreditation.**	
• **To enable the student to gain confidence as an independent learner and the ability to reflect on their own range of skills and knowledge.**	
• **To encourage the student to identify and pursue further learning opportunities and / or employment.**	
• **To encourage the student to develop an awareness of the role of the engineer, and other related professions, in industry.**	

12. Learning Outcomes and Teaching, Learning and Assessment Methods

A. Knowledge and Understanding

On successful completion of the programme the students will be able to:

A1. Demonstrate the skills necessary to undertake undergraduate degree level study in areas covered by the School of Engineering, including basic ICT skills and mathematics.

A2. Explain and apply the basic principles relevant to a range of areas covered in courses within the School of Engineering.

A3. Discuss the external factors impacting various areas covered in courses within the School of Engineering.

Teaching and Learning Methods

A range of teaching and learning methods will be used such as lectures, tutorials, workshops, discussions, feedback sessions, practical sessions, design exercises and simulations, including use of ICT and online materials (via elearn / Blackboard).

Assessment Methods

A range of assessment methods will be used such as portfolios, examinations, practical exercises and team-work exercises. Formative assessment will include peer/self-evaluation and on-line evaluation.

B. Subject-Specific Skills

On successful completion of the programme the students will be able to:

B1. Demonstrate a logical approach to problem solving, design and analysis.

B2. Communicate effectively through written, graphical and oral presentations.

B3. Demonstrate basic competence in academic research methods including use of ICT and electronic resources.

Teaching and Learning Methods

A range of teaching and learning methods will be used such as lectures, tutorials, workshops, discussions, feedback sessions, practical sessions, design exercises and simulations, including use of ICT and online materials (via elearn / Blackboard).

Assessment Methods

A range of assessment methods will be used such as portfolios, examinations, practical exercises and team-work exercises. Formative assessment will include presentations, peer/self-evaluation and on-line evaluation.

C. Thinking Skills

On successful completion of the programme the students will be able to:

C1. Demonstrate effective decision-making in the context of understanding and solving problems related to areas covered in courses within the School of Engineering.

C2. Recognise and apply appropriate techniques to develop solutions to real-world problems.

C3. Reflect on their own understanding and begin to develop critical judgements.

Teaching and Learning Methods

A range of teaching and learning methods will be used such as lectures, tutorials, workshops, discussions, feedback sessions, practical sessions, design exercises and simulations, including use of ICT and online materials (via elearn / Blackboard).

Assessment Methods

A range of assessment methods will be used such as portfolios, examinations, practical exercises and team-work exercises. Formative assessment will include presentations, peer/self-evaluation and on-line evaluation.

D. Other skills relevant to employability and personal development
On successful completion of the programme the students will be able to: D1. Work independently and manage time effectively. D2. Demonstrate effective communication using reports and presentations. D3. Demonstrate effective ICT skills.
Teaching and Learning Methods
A range of teaching and learning methods will be used such as lectures, tutorials, workshops, discussions and feedback sessions, including use of ICT and online materials (via elearn / Blackboard).
Assessment Methods
A range of assessment methods will be used such as portfolios and team-work exercises. Formative assessment will include presentations, peer/self-evaluation and on-line evaluation.

13. Programme Structure				**14. Awards and Credits**
Level	**Module Code**	**Module Title**	**Credit rating**	
3	ERC001	Study Skills	20	**BSc (Hons) / BEng (Hons) / MEng (Hons) Engineering (Foundation Entry)**
	ERC002	Basic Mathematics	20	**Requires completion of 120 credits at Level 3.**
	ERC003	Information and Communications Technology	20	**Successful completion of the six Foundation Year Entry modules at the appropriate performance level (see**

	ERC004	Practical Skills	20	**below) leads to progression to Year 1 of appropriate undergraduate programmes within the School of Engineering.**
	ERC005	Design Studies	20	**An average mark of 60% or above is required for progression to MEng (Hons) courses.**
	ERC006	Analytical Studies	20	**MEng (Hons) Aerospace Engineering** **MEng (Hons) Computer Aided Engineering** **MEng (Hons) Civil Engineering** **MEng (Hons) Electronic Engineering** **MEng (Hons) Energy Engineering** **MEng (Hons) Fire Engineering** **MEng (Hons) Mechanical Engineering** **MEng (Hons) Motor Sports Engineering** **MEng (Hons) Oil and Gas Safety Engineering** **MEng (Hons) Robotics Engineering**
				An average mark of 50% or above is required for progression to **BEng (Hons) Aerospace Engineering** **BEng (Hons) Computer Aided Engineering** **BEng (Hons) Civil Engineering** **BEng (Hons) Electronic Engineering** **BEng (Hons) Energy Engineering** **BEng (Hons) Fire Engineering** **BEng (Hons) Mechanical Engineering** **BEng (Hons) Mechanical Maintenance Engineering** **BEng (Hons) Motor Sports Engineering** **BEng (Hons) Oil and Gas Safety Engineering** **BEng (Hons) Robotics Engineering**

				BEng (Hons) Building Services and Sustainable Engineering **An average mark of 40% or above is required for progression to** **BSc (Hons) Building Surveying** **BSc (Hons) Construction Project Management** **BSc (Hons) Facilities Management** **BSc (Hons) Quantity Surveying** **BSc (Hons) Fire and Leadership Studies** **BSc (Hons) Fire Safety and Risk Management** **Details of the delivery and focus of some of the modules would depend on the specific programme the student is registered for. Progression to School of Engineering programmes other than the programme for which the student is registered may be subject to interview.**

15. Personal Development Planning

PDP-related learning is presented informally at induction and is supported in all six modules in various respects. Students will be expected to develop a portfolio of their work throughout the year (coursework, reports, completed example sheets etc.), and discuss aspects of their personal and professional development with members of the course team including their Academic Advisor.

16. Admissions Criteria

Standard entrants will require 200 points at A-level (from two A-level passes), or 160 points (MPP) at BTEC, or equivalent. GCSE-level Mathematics and English at grade C or above are required. There are no other mandatory formal educational or specialist knowledge requirements for admission to this Foundation Year Entry programme.

Non-standard entrants will be considered on an individual basis, normally through interview, and are expected to be able to demonstrate personal reflection on their career to-date and show a strong desire and ability to study. They may be asked to produce a piece of written work to help assess their ability to benefit from the programme.

International applicants will have to demonstrate that they will benefit from the course and that they have a good grasp of the English language: English should be at the standard IELTS level required (or equivalent) by the University for admission to a Foundation Year Entry course at level 3, i.e. an overall IELTS score of 6.0 or higher with no subscore below 5.5.

17. Key sources of information about the programme

- UCLan web pages and prospectus.
- UCAS website
- Other UCLan marketing activities, e.g. Open Days etc.

18. Curriculum Skills Map

Level	Module Code	Module Title	Core (C), Compulsory (Comp)	Knowledge and Understanding			Subject-Specific Skills			Thinking Skills			Other skills relevant to employability and personal development		
				A1	A2	A3	B1	B2	B3	C1	C2	C3	D1	D2	D3
Level 3	ERC001	Study Skills	Comp	X	X	X	X	X	X			X	X	X	X
	ERC002	Basic Mathematics	Comp	X	X	X	X	X		X	X	X	X		
	ERC003	ICT	Comp	X	X		X	X	X	X	X	X	X	X	X
	ERC004	Practical Skills	Comp	X	X	X	X	X	X	X	X	X	X	X	X
	ERC005	Design Studies	Comp	X	X	X	X	X	X	X	X	X	X	X	X
	ERC006	Analytical Studies	Comp	X	X	X	X	X	X	X	X	X	X	X	X