



PROGRAMME SPECIFICATION

Part 1: Information	
Awarding Institution	University of the West of England, Bristol
Teaching Institution	University of the West of England, Bristol
Delivery Location	UWE, Frenchay
Study abroad / Exchange / Credit recognition	
Faculty responsible for programme	Environment and Technology
Department responsible for programme	Engineering Design and Mathematics
Professional Statutory or Regulatory Body Links	The programme has been designed so that future approval by Royal Aeronautical Society, the Institution of Mechanical Engineers, the Institution for Engineering and Technology, and the Institution for Civil Engineers will be possible.
Highest Award Title	PG Diploma Engineering Competence
Default Award Title	
Interim Award Titles	PG Certificate Engineering Competence
UWE Progression Route	
Mode of Delivery	Part Time
ISIS code/s	H1N242
For implementation from	January 2020

Part 2: Description

The PG Diploma Engineering Competence aims to:

Provide students with a broad educational experience in the Advanced Engineering sector, developing knowledge and capability in strategic business requirements and future developments. It has been designed closely with employers to cover key elements of business learning. In addition, it focuses all of its activities around the individual's professionalism, with structured career development at the heart of the learning – and as a core assessed module. Successful completion directs individuals to Chartered Engineer (CEng) registration and recognition.

This programme is directly relevant to the Level 7 Degree Apprenticeship “Postgraduate Engineer” Standard:

- Meeting this learning need for a range of Advanced Engineering-related organisations.
- Providing a strong academic foundation for graduates or equivalent within Advanced Engineering organisations, by developing company-focussed learning requirements into an academic learning programme suitable to develop the behaviours, skills and competencies required by this Degree Apprenticeship Standard.
- Offering a coherent and flexible programme of study at Postgraduate level to meet individual and organisation learning needs.
- Providing appropriate facilities and resources to deliver a quality teaching and learning experience for students, as appropriate.
- Enabling collaboration between academia and industry to provide a study programme of immediate benefit to the organisations.

Academically, the programme:

- Provides an academically rigorous curriculum to meet industrial learning requirements.
- Provides essential learning about specific industrial topic areas not otherwise well served with academic provision.
- Provides a suitable mixture of technical and business-related learning to meet the Standard's requirements.
- Enables independent thinking and learning to make immediate, positive impact on industry-based activities.

Programme requirements for the purposes of the Higher Education Achievement Record (HEAR)

This Postgraduate Diploma provides students with strategic master's level learning, and knowledge and the ability to implement this learning in an advanced engineering work place. This learning is facilitated and guided throughout, enabling students to relate it to their work environment knowing it is based on a strong academic foundation.

At successful completion, students will be making positive impact in their work environments, and will have developed their own professionalism and career planning in conjunction with the needs of the sector. The academic requirement for the Degree Apprenticeship Postgraduate Engineer Standard will be achieved.

Regulations

Approved to [University Regulations and Procedures](#)

Part 3: Learning Outcomes of the Programme

The Learning Outcomes are identified to ensure a sound, technically-related, business-orientated foundation for engineers to understand and implement industry strategy, processes and future development. They empower students to implement their academic learning – critically evaluative concepts, reflection, tools and techniques – in conjunction with the learning they have achieved through the Degree Apprenticeship work-based programme. They are expected to identify and learn from “lessons learnt” through this process.

The award route provides opportunities for students to develop and demonstrate knowledge and understanding, qualities, behaviours, skills and other attributes as required from the Degree Apprenticeship Standard, in the following areas:

A. Knowledge and Understanding (subject specific)

Students are expected to be able to demonstrate an understanding of how the engineering process integrates with wider industrial business requirements. They are expected to develop the required skills and behaviours to work within this context:

1. *To understand and evaluate the strategic priorities and future development of the industry sector*
2. *To critically evaluate and implement design, manufacturing and production within the advanced engineering sector*

B. Intellectual Skills (generic)

Students are expected to be able to:

3. *Analyse and evaluate the impact of current developments and emerging technologies in the Advanced Engineering sector, with focus on their organisations' activities*
4. *Demonstrate the understanding, knowledge, competency and capability, to contribute towards the development of a more sustainable and ethical engineering process.*

C. Subject/Professional/Practical Skills (subject specific)

Students are expected to:

5. *Identify, reflect upon, analyse and manipulate data and information to understand issues arising in their organisations and sector*
6. *Develop lessons learnt and recommendations*
7. *Critically reflect and review the planning and management of personal and professional development*

D. Transferable Skills and other attributes (generic)

Students are expected to:

8. *Demonstrate tactical and operational ability to communicate and implement knowledge and learning in the workplace*
9. *Demonstrate project management skills*
10. *Independently take and communicate academic learning into the workplace setting as a foundation for engineering projects.*

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Part 3: Learning Outcomes of the Programme										
<p><i>Blue: Core Modules Red: Optional Modules</i></p> <p>Learning Outcomes:</p>										
	UFMF97-15-M (ESD)	UFMFEQ-30-M (ESD)	UFMFFQ-30-M (ESD)	UFMF78-15-M	UMFEE8-15-M	UFMFB-15-M	UFMFB-15-M	UFMFB-15-M	UFMFGQ-15-M	UBGMHW-15-M
A) Knowledge and understanding of:										
<i>To understand and evaluate the strategic priorities and future development of the industry sector</i>	√			√	√					
<i>To critically evaluate and implement design, manufacturing and production within the advanced engineering sector</i>		√	√	√	√	√	√	√	√	√
(B) Intellectual Skills										
<i>Analyse and evaluate the impact of current developments and emerging technologies in the Advanced Engineering sector, with focus on their organisations' activities</i>		√	√	√	√				√	√
<i>Demonstrate the understanding, knowledge, competency and capability, to contribute towards the development of a more sustainable and ethical engineering process</i>		√	√		√	√	√	√	√	√
(C) Subject/Professional/Practical Skills										
<i>Identify, reflect upon, analyse and manipulate data and information to understand issues arising in their organisations and sector</i>		√	√	√	√					√
<i>Develop lessons learnt and recommendations</i>	√	√	√	√	√	√	√	√	√	
<i>Critically reflect and review the planning and management of personal and professional development</i>	√	√								
(D) Transferable skills and other attributes										
<i>Demonstrate tactical and operational ability to communicate and implement knowledge and learning in the workplace</i>		√	√	√	√	√	√	√	√	√
<i>Demonstrate project management skills</i>	√	√	√							√
<i>Independently take and communicate academic learning into the workplace setting as a foundation for engineering projects.</i>	√	√	√	√	√	√	√	√	√	√
<p>See Appendix A to show how the modules map onto UK-SPEC for Engineers, and appendix B for mapping against the Postgraduate Engineer Apprenticeship Standard.</p>										

GRADUATION

The **PG Diploma Engineering Competence** requires 120 taught credits.

Note: the PG Diploma is required for students to be able to successfully complete the Degree Apprenticeship requirements.

The **PG Certificate Engineering Competence** requires 60 taught credits; this is the **Interim Award**.

Part 4: Programme Structure				
There is NO Full Time pathway for this PG Diploma award. The below structure is for a typical part time student.				
ENTRY		Compulsory Modules	Optional Modules	Awards
	Level 7 (M) Year 1.1	UFMF97-15-M: Professional Development Appraisal & Continuing Review UFMFEQ-30-M: Group Project Challenge UFMFFQ-30-M: Masters Group Technical Project	<i>15 to 30 credits from:</i> UFMF78-15-M: Strategic Analysis of Technical Operations UFMFVH-15-M: Requirements Engineering UFMFGQ-15-M: Data Analytics for Engineers UFMEE8-15-M: Principles of Lean Engineering UFMFNB-15-M: Foundations of Systems Engineering UBGMHW-15-M Digital Engineering for Infrastructure	
	Level 7 (M) Year 1.2	<i>Continuation of:</i> UFMF97-15-M: Professional Development Appraisal & Continuing Review <i>Continuation of:</i> UFMFFQ-30-M: Masters Group Technical Project	<i>15 to 30 credits (depending on number of optional modules taken in year 1.1) from:</i> UFMF78-15-M: Strategic Analysis of Technical Operations UFMFVH-15-M: Requirements Engineering UFMFGQ-15-M: Data Analytics for Engineers UFMEE8-15-M: Principles of Lean Engineering UFMFNB-15-M: Foundations of Systems Engineering	Highest Award: PG Diploma Engineering Competence (120 credits, must include 75 credits from UFM97-15-M, UFMFEQ-30-M, UFMFFQ-30-M) Interim Award: PG Certificate Engineering Competence (60 credits, must include 45 credits from compulsory modules UFMF97-15-M, plus 30 credits from either UFMFEQ-30-M or UFMFFQ-30-M)

Part 5: Entry Requirements

The University's Standard Entry Requirements apply with the following additions/exceptions:

- Normally a 2:2 in a relevant degree, or significant work experience in an appropriate setting.
- For this programme, students must be employed by an Advanced Engineering organisation in an appropriate role. In addition, to be eligible for entry to the PG Diploma, they must also meet the required UWE standards.
- Students who do not meet the minimum academic entry requirements but have significant work experience will be considered on an individual basis by the Programme Leader.

Part 6: Reference Points and Benchmarks

Framework for higher education qualifications (FHEQ)

[QAA UK Quality Code for HE](#)

[Strategy 2020](#)

[University policies](#)

In addition, the following have been considered:

1. The SEEC Level Descriptors for Masters learning outcomes:
<http://www.seec.org.uk/academic-credit/seec-credit-level-descriptors-2010>
2. Engineering UK-Spec Specific Learning Outcomes, with respect to the requirements from the Professional Engineering Institutions:
<https://www.engc.org.uk/ukspec>
3. Level 7 "Postgraduate Engineer" Degree Apprenticeship Standard.
[<https://www.gov.uk/government/publications/apprenticeship-standard-post-graduate-engineer-approved-for-delivery>]
4. UWE's [Enhancement Framework](#).

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Appendix A: Benchmarking to UK-SPEC (Engineering Accreditation Board): Specific Learning Outcomes Matrix

COURSES	SM1M	SM2M	SM3M	SM4M	SM5M	SM6M	EA1M	EA3M	EA4M	EA5M	EA6M	D3M	D7M	D8M	EL1M	EL3M	EL5M	EL6M	EL7M	P2M	P4M	P8M	P9M	P10M	P11M	G3M
UFMF97-15-M Professional Development Appraisal and Continuing Review			√			√						√			√						√				√	√
UFMFEQ-30-M Group Project Challenge	√	√	√			√		√		√	√	√	√	√	√	√		√			√		√		√	√
UFMFFQ-30-M Group Technical Project	√	√	√			√		√	√	√	√	√	√	√	√	√		√	√	√	√	√	√	√	√	√
UFMF78-15-M Strategic Analysis of Technical Operations	√	√		√		√	√			√	√	√					√	√	√	√	√		√	√		
UFMEE8-15-M Principles of Lean Engineering	√	√		√	√	√		√	√	√	√	√	√	√			√	√	√	√	√	√	√	√		
UFMFNB-15-M Foundations of Systems Engineering	√	√			√	√		√	√	√	√	√	√	√								√	√	√	√	
UFMFVH-15-M Requirements Engineering	√	√			√	√		√	√	√	√	√	√	√				√	√		√	√	√	√		
UFMFGQ-15-M Data Analytics for Engineers	√	√		√	√	√		√	√	√	√	√	√	√								√	√	√	√	
UBGMHW-15-M Digital Engineering for Infrastructure	√		√	√		√	√	√		√	√	√		√	√	√		√			√	√	√	√	√	√

**Note that further evidence from the workplace will need to be demonstrated to ensure the competency is fully met.*

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Appendix B: Mapping of Knowledge, Skills and Behaviours from PG Dip Engineering Competence to the Postgraduate Engineer Apprenticeship Standard

Where a module will fully satisfy a requirement of the apprenticeship standard this is marked 'F'. Where a module partially covers a requirement this is marked 'P'.

Post Graduate Engineers are able to demonstrate:	UFMF97-15-M	UFMFEQ-30-M	UFMFFQ-30-M	UFMEE8-15-M	UFMFGQ-15-M	UFMF78-15-M	UFMFNB-15-M	UFMFVH-15-M	UBGMHW-15-M	Company Training	Apprenticeship Work Experience	Final Approval	* Programme Learning Outcomes
Knowledge													
The theoretical knowledge to solve problems in existing and emerging technologies, applying and developing analytical techniques			P	P	P	P	P	P	P				A2, B3
Understanding of business and commercial needs/constraints		P	P			P			P				A1, A2
Knowledge and understanding of own competencies capabilities and limitations, ability to work within these and highlight when work goes outside of these	F	P	P										B4, C6
Understanding of financial responsibilities and authorisation processes				P		P			P				B4, D9
Understanding of technical sign off responsibilities, who within their organisation needs to be involved in the sign off of product/processes			P			P			P				B4, D9
PATHWAY 11 SPECIFIC SPECIALIST KNOWLEDGE													
Understand the principles of risk management and how lessons learnt can be implemented to ensure project risk is recognised and minimised through the project life cycle		P	P						P				B3, C6, D8, D9
Understand all internal processes, regulatory requirements in order to meet customers' requirements			P										A2, C5, D9, D10
Skills													
Safe working practices, an understanding of technical governance and quality management			P	P		P			P				A2, B4, C8, D9
Compliance with legislation and codes, but be able to seek improvements		P	P	P		P			P				B4, D9
Practical competence to deliver innovative products and services		P	F						P				B4, C5, C6, D9
Technical responsibility for complex engineering systems		P	P	P	P		P	P	P				A2, B3, B4, C5, C6, D8
Accountability for project(s)/programme(s), finance and personnel management		P		P		P			P				B4, D8, D9
Management of trade-offs between technical and socio-economic factors		P	P			P							A1, B3, B4, C5
The skill sets necessary to develop other technical staff	P	P	P	P	P		P	P	P				C6, C7, D8, D10
PATHWAY 11 SPECIFIC SPECIALIST SKILLS													
Ensure that engineering integrity is achieved, engineering procedures are complied with		P	P	P					P				C5, C6, C7

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Co-ordinate a cross functional and multidiscipline engineering team to deliver all work packages within time and cost budgets to required quality on assigned programs		P	P			P			P					A2, C5, C7
Develop a strong and positive technical relationship with all internal and external customers		P	P		P	P	P	P	P					C5, C7, D8
Effectively manage resource to achieve plans and to drive improvements to enhance productivity		P	P	P	P	P	P		P					D9
Inject knowledge and expertise to the team and customer to ensure robust and timely solutions are developed for technical and programme issues		P	P	P					P					A2, B3, B4, D10
Ensure rigorous application of risk management and lessons learnt to ensure project risk is understood and minimised through the project life cycle		P	P	P					P					C6, D9
Ensure all internal process, regulatory and customer requirements are met		P	P	P		P			P					D9
Lead the engineering technical/manufacturing team to ensure that lessons learnt are addressed and a robust trouble free product is developed		P	P	P	P				P					C6, C7, D8
Ensure that product strategies are in place to provide discriminating technologies for future products if appropriate		P	P			P	P		P					A1, A2
Core Behaviours														
Modern Engineering organisations require their employees to have a set of behaviours that will ensure success, both in their role and in the overall company objectives. These required behaviours are aligned to those specified for Professional Registration, as defined in UK-SPEC														
A. Knowledge and understanding														
Demonstrating commitment to continue personal development, refreshing and expanding Engineering knowledge keeping up-to-date with emerging technologies	P	P	P	P	P	P	P	P	P					A1, A2, B3, C6, C7
B. Design and development of processes, systems, services and products														
Contributing proactively to the continuing development of Engineering within their domain	P	P	P	P	P	P	P	P	P					A2, B4, C6, D10
C. Responsibility, management or leadership														
Taking personal responsibility for their actions, managing projects, including resource management within their remit and able to mentor and instruct others in associated standards and best practice	P	P	P	P	P	P	P	P	P					C6, C7, D8, D9, D10
D. Communication and inter-personal skills														
Being able to demonstrate a range of communication styles and methods. Understanding the importance of networks within and across functions, handling conflict, giving and using feedback effectively. Able to understand the different needs for business relationships and their associated communication requirements.	P	P	P	P	P	P	P	P	P					C6, C7, D8, D9, D10
E. Professional commitment														
Demonstrating a personal, ethical and professional commitment to society, their profession and the environment, adopting a set of values and behaviours that will maintain and enhance the reputation of the profession as well as their organisation and fulfilling requirements with respect to maintenance of personal records for Professional Registration.	P	P	P	P	P	P	P	P	P					B4, C7, D10

***Programme Learning Outcomes have been added as indicative. Each one is likely to cover a range of the KSB requirements.**

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	10/12/2019		2	Link to RIA (ID 5217)
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Date of last Periodic Curriculum Review				