

Programme Specification for Postgraduate Programme Leading to:

MSc Lightweight Structures and Impact Engineering

MSc Lightweight Structures and Impact Engineering with Internship

MSc Lightweight Structures and Impact Engineering with Placement

Applicable for all postgraduate students starting in 2021.

| Version No. | Date | Notes – QUALITY ASSURANCE USE ONLY | QA |
|--------------|------------------|---|----|
| 2021-22 v1 | 25 November 2020 | Senate approved this new programme, which will be taught off-campus at National Structural Integrity Research Centre (NSIRC) Cambridge. | JP |
| 2021-22 v2 | 22 February 2021 | Route code added - 1JA8PLISTIE | JP |
| 2021-22 v2.1 | 8 March 2021 | HECoS code weighting confirmed as 100190 - Mechanical Engineering – 34%; 100115 - Aerospace Engineering – 33%; 100201 - Automotive Engineering – 33%. | JP |

| Postgraduate Taught Programme | |
|---|--|
| 1. Awarding institution | Brunel University London |
| 2. Teaching institution(s) | Brunel University London |
| 3. Home College/Department/Division | College of Engineering, Design and Physical Sciences Department of Mechanical and Aerospace Engineering |
| 4. Contributing College/Department/Division/ Associated Institution | Department of Mechanical and Aerospace Engineering Brunel Centre for Advanced Solidification Technology (BCAST) Taught off-campus at National Structural Integrity Research Centre (NSIRC) Cambridge. |
| 5. Programme accredited by | Not Accredited. |
| 6. Final award(s) and FHEQ Level of Award | MSc in Lightweight Structures and Impact Engineering (FHEQ 7) MSc in Lightweight Structures and Impact Engineering with Internship (FHEQ 7) MSc in Lightweight Structures and Impact Engineering with Placement (FHEQ 7) |
| 7. Programme title | Lightweight Structures and Impact Engineering |
| 8. Programme type (single honours/joint) | N/A |
| 9. Normal length of programme (in months) for each mode of study | MSc: Full-time (12 months), Part-time (24 months) MSc with Internship: Full-time (15 months) MSc with Placement: Full-time (24 months) |
| 10. Maximum period of registration for each mode of study | Normal or standard duration, plus two years |
| 11. Variation(s) to September start | None |
| 12. Modes of study | Full-Time / Part Time |
| 13. Modes of delivery | Block Mode |

| | |
|---|--|
| 14. Intermediate awards and titles and FHEQ Level of Award | PG Diploma in Lightweight Structures and Impact Engineering (FHEQ 7) PG Certificate Lightweight Structures and Impact Engineering (FHEQ 7) |
| 15. UCAS Code | N/A |
| 16. HECoS Code | 100190 – 34% 100115 – 33% 100201 – 33% |
| 17. Route Code | 1JA8PLISTIE |
| 18. Relevant subject benchmark statements and other external and internal reference points used to inform programme design | UK Quality Code for Higher Education QAA Subject Benchmark Statement (Engineering) Brunel 2030 Brunel Placement Learning Policy, as published under the ‘Placements’ section of the ‘Managing Higher Education Provision with Others’ page. Engineering Council, UK-SPEC document “Chartered Engineer and Incorporated Engineer Standard” Engineering Council, Accreditation of Higher Education Programmes (AHEP) |
| 19. Admission Requirements | Details of PGT entry requirements are provided on the University’s and College website. Levels of English for non-native speakers are outlined on Brunel International's language requirements pages. |
| 20. Other relevant information (e.g. study abroad, additional information on placements) | Internships and Placements are undertaken after completion of the MSc programme (taught and dissertation components) and provide significant flexibility for applicants who can attain a Master’s degree, with or without working in an industrial setting. The responsibility for finding an internship / placement lies with the student, as the University cannot guarantee any form of work experience, just the opportunity to undertake it if available. There will be supervision, guidance and support for students embarking on the placement. Students who cannot secure a placement by the end of Term 2 after enrolling on the programme, will be reverted to the full-time programme. |
| 21. Programme regulations not specified in Senate Regulation 3. Any departure from regulations specified in Senate Regulation 3 must be stated here and approved by Senate. | N/A |
| 22. Further information about the programme is available from the College website. | Link to programme information on the College website |

| |
|--|
| 23. EDUCATIONAL AIMS OF THE PROGRAMME |
| <p>Advanced structures using novel, lightweight materials are one of the key enabling technologies for a range of sectors. In reducing inherent structural weight, it is essential not to compromise safety, with issues including structural integrity and designing for crashworthiness becoming key design drivers. For example,</p> <ul style="list-style-type: none"> • In the transportation sector, light-weighting is essential to reduce inherent structural weight for manufacturers to meet national targets for carbon reduction. • Design of portable consumer electronic devices, including impact and shock protection. • Maximising payload in space applications, where the underlying structure becomes the key design driver due to the high launch cost per kilogram. |

- High performance cars, including F1, where composite and metallic materials are combined to ensure performance, commercial and competitive targets are met.

Designing lightweight structures to perform an intended function over its lifecycle, when subject to static and dynamic loading conditions encountered during normal operation and extreme loading conditions, requires expertise in a range of areas. This expertise primarily relates to the application of advanced numerical simulation to understanding non-linear material and structural response over different operating conditions, which may include large or rapid deformation, failure (static and transient), and high strain rate loading (inertial effects, wave propagation and shockwaves).

As new simulation and material technologies emerge, there is a continuing need for talented employees with a strong, applied understanding in structural analysis and testing, together with competent technical skills in non-linear numerical simulation (mesh and meshfree methods) that can be directly applied to industrial problems.

Key aims of the programme include:

- Develop a systematic understanding of non-linear structural response and material failure, informed by the current state of the art, to support lightweight structural design under a range of loading conditions, with particular emphasis on crashworthiness, structural integrity and impact related issues.
- Originality and application of this knowledge through understanding established analysis techniques and their limitations, applied to quasi-static, dynamic and extreme loading problems, which may include large or rapid deformation, where inertial effects, wave propagation and shockwaves dominate the response.
- To develop a firm grasp of the relationship of basic phenomena to real life engineering systems, and develop industrially relevant and marketable applied skills in structural analysis and design, using the latest industry standard advanced simulation codes (mesh based and mesh free).
- Develop initiative and personal responsibility in problem solving, project management (including compliance with safe operating practises and Health and Safety Procedures), decision-making and communication, by providing the infrastructure to successfully complete a fundamental or applied research project either independently, or through team-based learning.
- To supply high grade personnel to the structural integrity communities in UK, European and world industry, able to pursue careers in aerospace, automotive, offshore and defence sectors.
- Provide a clear pathway for continuing professional development, either through a doctoral training programme, or progression towards Chartered Engineer Status (CEng).

24. PROGRAMME AND INTERMEDIATE LEARNING OUTCOMES

The programme provides opportunities for students to develop and demonstrate knowledge and understanding (K) cognitive (thinking) skills (C) and other skills and attributes (S) in the following areas:

| Masters FHEQ Level 7 | Category (K = knowledge and understanding, C = cognitive (thinking) skills, S = other skills and attributes) | Learning Outcome | Masters Award Only | Associated Assessment Blocks Code(s) | Associated Study Blocks Code(s) | Associated Modular Blocks Code(s) |
|---|--|---|---|---|--|---|
| Masters and FHEQ level 7 | | | | | | |
| 1. | K, C [SM7m] | A comprehensive synthesis and understanding of established principles, concepts and theories underpinning the design and analysis of lightweight structures | ME5XXX Dissertation With optional internship: | ME5XXX Applied Continuum Mechanics and FEA | ME5XXX Applied Continuum Mechanics 1: Fundamentals ME5XXX Applied Continuum | ME5XXX Fracture Mechanics and Fatigue Analysis ME5XXX Metallurgy and Materials |

| | | | | | | |
|----|--------------------|---|---|---|---|---|
| | | | ME5XXX Internship | | Mechanics 2: FEA ME5XXX Structural Mechanics Fundamentals | ME5XXX Composite Material Structures ME5XXX Automotive Integral Vehicle Structures ME5XXX Thin Walled Structures |
| 2. | K, C [SM7m] | Examine and evaluate complex issues and phenomena associated with the analysis of structures under extreme loading. | | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthine ss | |
| 3. | K, C [SM8m] | Investigate and appraise the state of the art in numerical, experimental and material characterisation techniques and their application to structural design | ME5XXX Dissertatio n | ME5XXX Applied Continuum Mechanics and FEA ME5XXX Group Project | MEXXXX Applied Continuum Mechanics 1: Fundamentals MEXXXX Applied Continuum Mechanics 2: FEA MEXXXX Impact and Crashworthine ss MEXXXX: Advanced Transient Simulation Methods | ME5XXX Metallurgy and Materials ME5XXX Composite Material Structures |
| 4. | K, C [SM9m] | Through critical evaluation of established analysis techniques and their limitations, employ appropriate concepts to support the solution of engineering problems | ME5XXX Dissertatio n With optional internship: | ME5XXX Applied Continuum Mechanics and FEA ME5XXX Group Project | ME5XXX Structural Mechanics Fundamentals ME5XXX Applied Continuum | ME5XXX Fracture Mechanics and Fatigue Analysis ME5XXX Metallurgy and Materials |

| | | | | | | |
|----|-----------------------|--|---|--|--|--|
| | | | ME5XXX Internship | | Mechanics 1: Fundamentals | ME5XXX Automotive Integral Vehicle Structures |
| | | | With optional Placement: ME5XXX Placement | | ME5XXX Applied Continuum Mechanics 2: FEA | ME5XXX Thin Walled Structures |
| | | | | | ME5XXX Advanced Transient Simulation Methods | |
| | | | | | ME5XXX Impact and Crashworthine ss | |
| 5. | K, C, S [EA6m] | Demonstrate originality, application of knowledge and initiative in complex problem solving, demonstrated through critical analysis and interpretation of results. | ME5XXX Dissertatio n | ME5XXX Applied Continuum Mechanics and FEA | ME5XXX Applied Continuum Mechanics 1: Fundamentals | ME5XXX Fracture Mechanics and Fatigue Analysis |
| | | | With optional internship: ME5XXX Internship | ME5XXX Group Project | ME5XXX Applied Continuum Mechanics 2: FEA | ME5XXX Metallurgy and Materials |
| | | | With optional Placement: ME5XXX Placement | | ME5XXX Advanced Transient Simulation Methods | ME5XXX Composite Material Structures |
| | | | | | ME5XXX Impact and Crashworthine ss | ME5XXX Automotive Integral Vehicle Structures |
| | | | | | | ME5XXX Thin Walled Structures |
| 6. | K, C [EA5m] | Critically relate fundamental principles, concepts and theories to interpret and evaluate the latest research in an engineering structures related area | ME5XXX Dissertatio n | | | ME5XXX Metallurgy and Materials |
| 7. | C [EA7m] | Assemble and critically analyse primary, secondary and incomplete data to support the engineering approach developed to solve an unfamiliar problem | ME5XXX Dissertatio n | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods | ME5XXX Fracture Mechanics and Fatigue Analysis |
| | | | | | ME5XXX Impact and | ME5XXX Composite |

| | | | | | Crashworthiness | Material Structures |
|-----|-----------------------|--|--|--|--|---|
| 8. | C, S [D9m] | Identify and apply relevant statistical, analytical, numerical or testing techniques to minimise uncertainties in information and quantify its effect on the design | ME5XXX Dissertation | ME5XXX Applied Continuum Mechanics and FEA ME5XXX Group Project | ME5XXX Applied Continuum Mechanics 1: Fundamentals ME5XXX Applied Continuum Mechanics 2: FEA ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | |
| 9. | K, C [D10m] | Appraise and employ current design, industry standards and certification practices to support the engineering design process | ME5XXX Dissertation | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | ME5XXX Automotive Integral Vehicle Structures |
| 10. | K, C, S [D11m] | Through analysis, simulation or experimentally led design, propose, develop and validate lightweight structural engineering concepts (and impact protection systems where appropriate) to address an engineering problem | ME5XXX Dissertation | | | |
| 11. | C [EL8m] | Consider and relate the strategic context and importance of professional conduct in engineering. | ME5XXX Dissertation With optional internship: ME5XXX Internship | ME5XXX Applied Continuum Mechanics and FEA ME5XXX Group Project | ME5XXX Applied Continuum Mechanics 1: Fundamentals ME5XXX Applied Continuum Mechanics 2: FEA | ME5XXX Metallurgy and Materials |

| | | | | | | |
|-----|---------------------|---|---|----------------------|---|---------------------------------|
| | | | With optional Placement: ME5XXX Placement | | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | |
| 12. | C [EL9m] | Consider the commercial and social contexts and its influence on the design process | ME5XXX Dissertation With optional internship: ME5XXX Internship With optional Placement: ME5XXX Placement | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | |
| 13. | C, S [EL10m] | Systematically evaluate and employ appropriate techniques to manage time and resources to achieve required objectives | ME5XXX Dissertation With optional Placement: ME5XXX Placement | | | |
| 14. | K, C [EL11m] | Consider the importance and influence of sustainable / responsible use of resources within engineering activities | With optional Placement: ME5XXX Placement | | | ME5XXX Metallurgy and Materials |
| 15. | K, C [EL12m] | Critically evaluate the regulatory requirements and their importance to the design and analysis of lightweight engineering structures | ME5XXX Dissertation With optional Placement: ME5XXX Placement | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | |

| | | | | | | |
|-----|--------------------|---|--|---|--|--|
| 16. | C, S [EL13m] | Categorise, evaluate and manage risk to a project, including health & safety, environmental or commercial (where relevant). | ME5XXX Dissertation With optional internship: ME5XXX Internship With optional Placement: ME5XXX Placement | | | |
| 17. | K, C [P12m] | Investigate material performance, surface engineering techniques and failure to evaluate the latest capabilities and limitations in advanced simulation codes / analysis approach | ME5XXX Dissertation | ME5XXX Applied Continuum Mechanics and FEA ME5XXX Group Project | ME5XXX Applied Continuum Mechanics 1: Fundamentals ME5XXX Applied Continuum Mechanics 2: FEA ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthine ss | ME5XXX Fracture Mechanics and Fatigue Analysis ME5XXX Metallurgy and Materials ME5XXXX Composite Material Structures ME5XXX Thin Walled Structures |
| 18. | S [P9m] | Develop an independent learning ability to investigate and evaluate the state of knowledge and latest research in a specific subject area | ME5XXX Dissertation | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthine ss | ME5XXX Metallurgy and Materials ME5XXXX Composite Material Structures |
| 19. | K, C [P10m] | Systematically evaluate and justify appropriate engineering techniques, taking into account commercial and industrial constraints | ME5XXX Dissertation | ME5XXX Applied Continuum Mechanics and FEA | ME5XXX Applied Continuum Mechanics 2: FEA | |

| | | | | | | |
|-----|--------------|--|---|--|--|---|
| | | | With optional internship: ME5XXX Internship | | | |
| | | | With optional Placement: ME5XXX Placement | | | |
| 20. | S [P11m] | Determine, manage and prioritise time and resources to achieve required objectives on an unfamiliar problem, either individually, or as part of collaborating and /or leading a team | | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | |
| 21. | S [G1] | Develop effective problem solving through appropriate selection of IT, communication and presentation resources | ME5XXX Dissertation With optional internship: ME5XXX Internship With optional Placement: ME5XXX Placement | ME5XXX Applied Continuum Mechanics and FEA ME5XXX Group Project | ME5XXX Applied Continuum Mechanics 1: Fundamentals ME5XXX Applied Continuum Mechanics 2: FEA ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthiness | ME5XXX Fracture Mechanics and Fatigue Analysis ME5XXX Metallurgy and Materials ME5XXX Composite Material Structures |
| 22. | C, S [G2] | Develop an independent learning ability to support continued professional development, through performance evaluation and reflection | ME5XXX Dissertation With optional internship: | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods | |

| | | | | | | |
|-----|----------------|--|--|-------------------------|---|--|
| | | | ME5XXX Internship | | ME5XXX Impact and Crashworthine ss | |
| | | | With optional Placement: ME5XXX Placement | | | |
| 23. | S [G3m] | Prioritise, plan and execute a substantial individual programme of work to successful completion, measured through regular monitoring and adaption where necessary | ME5XXX Dissertatio n With optional internship: ME5XXX Internship With optional Placement: ME5XXX Placement | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthine ss | |
| 24. | S [G4] | Develop initiative and personal responsibility in problem solving, either independently or through team-based learning. | ME5XXX Dissertatio n With optional internship: ME5XXX Internship With optional Placement: ME5XXX Placement | ME5XXX Group Project | ME5XXX Advanced Transient Simulation Methods ME5XXX Impact and Crashworthine ss | ME5XXX Fracture Mechanics and Fatigue Analysis |

Learning/teaching strategies and methods to enable learning outcomes to be achieved, including formative assessments

The aim of the programme is to provide students with effective training in the skills required for a master degree, and subsequently for the work place, and to empower them, with support, to take their own learning further, as they develop their critical analysis and problem-solving abilities.

Module design includes blending formal lectures, self-study questions, practical computational and lab-based workshops, self-study online videos, tutorials and group project work. The activities used are subject dependent and designed to place the student at the centre of the programme framework to encourage deeper learning. The programme will also be supplemented by invited external speakers from industry.

Delivered in a block mode typically across two weeks, timetabled self-study time is an important part of the delivery and learning process, which enables additional tutorial support to be scheduled.

A formative study block in structural mechanics and stress analysis has been designed to support those who may not have a direct mechanical engineering background. Assessment will be indirect through subsequent, more specialist modules that build on this material.

The programme will employ two 30 Credit assessment blocks, which allow a synoptic assessment of student learning on longer, more challenging problems. Group work also encourages personal responsibility of learning in order to achieve a collaborative goal, in addition to developing 'soft' skills, such as communication, planning and management.

The programme will be informed by an industrial advisory committee comprising senior engineers from automotive, aerospace and consultancy sectors, who are directly involved with leading lightweight structures related research. Advice from this committee will ensure programme content is up to date, relevant and equips students with the skills and knowledge required by leading employers.

Formative assessments include:

- Technical oral presentations (including technical posters)
- Module based activities (including self-assessment questions)
- Group Discussion / Debate, which may include flipped-classroom teaching (where appropriate)

The teaching team have experience of using technology enhanced learning, which includes the Blackboard Virtual Learning Environment (VLE) (and Blackboard Collaborate for online training), flipped classroom teaching and online assessment and feedback. The VLE will be used to disseminate taught material (including lecture notes, supplementary handouts, etc), providing convenient access when off-site. Hard copies of handouts will also be provided if requested, or where they are more appropriate for module delivery.

All coursework submissions will be online with software-aided plagiarism checking.

Summative assessment strategies and methods to enable learning outcomes to be demonstrated.

Care is taken to ensure a balance between examinations and assignments, which are aligned with overall programme Learning Outcomes. Both approaches have their place at FHEQ Level 7 by assessing different skills sets and provides a fairer reflection on student performance, by recognising the individuality of learners and ensuring assessments do not favour or disadvantage specific groups.

In keeping with best practice, assessment will be criteria based and grades determined upon clearly defined learning outcomes, which are aligned with the overall programme learning outcomes and developed with reference to skill set subject benchmarks.

Each form of assessment has been specifically chosen to constructively align the assessment task, learning activities and learning outcomes, to encourage the right approach to learning by students. Clearly defined marking schemes and model solutions are provided for assignments and exam questions, which are internally and externally scrutinised (through the External Examiner) to check for clarity and alignment to the learning outcomes.

- *Examinations*
Closed book, designed to draw on knowledge across several aspects of the module to allow broader understanding to be assessed through more comprehensive questions.
- *Assignments*
Designed to assess application of knowledge, approaches to problem solving, technical writing and critical evaluation of approach / results on a more detailed problem. Summative and formative feedback will be provided to enable student reflection on their learning and achieved through feedback sheets, or direct annotation onto submitted course work.
- *Dissertation*
A key component, designed to test a candidate's ability to plan and execute a piece of individual research, and critically assess their findings. A system of first supervisors and second markers will be employed for dissertation marking and any major discrepancy between markers will be resolved locally in the first instance. If no agreement, a third marker is used, whose resulting assessment will be final, in-line with standard Departmental practice. The assessment will also include a final project presentation.

In addition, the use of formative assessment (where appropriate) allows staff and student to monitor progress, identify gaps in skills and knowledge and enables a student to take personal ownership of their learning.

25. Programme Structure, progression and award requirements

Programme structures and features: levels, assessment blocks, credit and progression and award requirements

- **Compulsory block:** one which all students registered for the award are required to take as part of their programme of study. These will be listed in the left hand column;
- **Optional block:** one which students choose from an 'option range'. These will be listed in the right hand column;
- A **core assessment** is an assessment identified within an assessment block or modular block (either compulsory or optional) which must be passed (at grade C- or better) in order to be eligible to progress and to be eligible for the final award. All core assessments must be specified on the programme specification next to the appropriate assessment or modular block:

Where students are expected to pass the block at C- or better, but not necessarily all elements, then the block itself is core.

e.g. AB5500 Project (40)
Core: Block

Where only some elements of assessments are required to be passed at C- or better, these will be identified by listing each element that is core

e.g. ABXXX1 Title (XX credits)
Core: 1 & 4

Where students are expected to pass all assessments in a block then this will be identified. By setting the assessment this way, students are also required to pass the block by default. This will be identified thus:

e.g. ABXXXX Title (XX credits)
Core: All, Block

- A **non-core assessment** does not have to be passed at grade C- or better, but must D- or better in order to be eligible for the final award.

| Masters and FHEQ Level 7 | |
|--|---|
| Compulsory assessment block codes, titles and credit FULL-TIME: (12 Months) MEXXXX: Group Project (30Cr) MEXXXX: Applied Continuum Mechanics and FEA (30Cr) PART-TIME: (24months) <u>Year 1:</u> MEXXXX: Group Project (30Cr) MEXXXX: Applied Continuum Mechanics and FEA (30Cr) | Optional assessment block codes, titles and credits |
| Compulsory study block codes, titles and credit volume | Optional Study block codes, titles and credit volume |
| FULL-TIME (12 Months) (MSc) MEXXXX: Structural Mechanics Fundamentals (0Cr) MEXXXX: Applied Continuum Mechanics 1: Fundamentals (15Cr) MEXXXX: Applied Continuum Mechanics 2: FEA (15Cr) MEXXXX: Advanced Transient Simulation Methods (15Cr) MEXXXX: Impact and Crashworthiness (15Cr) | |

| | |
|---|---|
| <p><u>PART-TIME: (24months)</u> <u>Year 1:</u> MEXXXX: Structural Mechanics Fundamentals (0Cr) MEXXXX: Applied Continuum Mechanics 1: Fundamentals (15Cr) MEXXXX: Applied Continuum Mechanics 2: FEA (15Cr) MEXXXX: Advanced Transient Simulation Methods (15Cr) MEXXXX: Impact and Crashworthiness (15Cr)</p> | |
| <p>Compulsory modular block codes, titles and credits</p> | <p>Optional modular block codes, titles and credits</p> |
| <p><u>FULL-TIME (12 Months)</u> <i>Compulsory Assessment Blocks (2 x 30Cr)</i> + ME5XXX: Fracture Mechanics and Fatigue Analysis (15Cr) ME5XXX: Metallurgy and Materials (15Cr) MEXXXX: Composite Materials and Structures (15Cr) ME5XXX: Dissertation (60 Credits) for MSc only Core: Block</p> <p><u>PART-TIME: (24months)</u> <u>Year 1:</u> <i>Compulsory Assessment Blocks</i> <u>Year 2:</u> ME5XXX: Fracture Mechanics and Fatigue Analysis (15Cr) ME5XXX: Metallurgy and Materials (15Cr) MEXXXX: Composite Materials and Structures (15Cr) + ONE Optional Module <u>Year 2 – TERM 3:</u> ME5XXX: Dissertation (60 Credits) Core: Block</p> | <p><u>FULL-TIME (12 Months)</u> <i>Specialist Options – Select:</i> ME5XXX Thin Walled Structures (15Cr) <u>or:</u> ME5XXX Automotive Integral Vehicle Structures (15Cr) <u>PART-TIME (24months)</u> <u>Year 2:</u> <i>Specialist Options – Select:</i> ME5XXX Thin Walled Structures (15Cr) <u>or:</u> ME5XXX Automotive Integral Vehicle Structures (15Cr)</p> |
| <p>Masters and FHEQ Level 7 – “with Internship”</p> | |
| <p>Compulsory modular block codes, titles and credits ME5XXX Internship Core: Block</p> | |
| <p>Masters and FHEQ Level 7 – “with Placement”</p> | |
| <p>Compulsory modular block codes, titles and credits ME5XXX Placement Core: Block</p> | |
| <p>Masters and FHEQ Level 7 Progression and Award Requirements As per Senate Regulation 3 A PGDip may be awarded by substitution of the dissertation (ME5XXX) for up to 30 credits of modular/assessment blocks in the taught part of the programme, provided the learning outcomes have been met.</p> | |

Please note: this specification provides a concise summary of the main features of the programme and the learning outcomes that a student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods can be found in the modular block, assessment and study block outlines and other programme and block information. The accuracy of the information contained in this document is reviewed by the University from time to time and whenever a modification occurs.