Prifysgol Cymru
Y Drindod Dewi Sant
University of Wales
Trinity Saint David

PROGRAMME OF STUDY HANDBOOK

ACADEMIC DISCIPLINE OF ENGINEERING

BEng/HND/C/DipHE/CertHE Advanced Manufacturing Operations
BEng/HND/C/DipHE/CertHE Energy & Environmental Engineering
BEng/HND/C/DipHE/CertHE Manufacturing Systems Engineering
BEng/HND/C/DipHE/CertHE Materials Science
BEng/HND/C/DipHE/CertHE Mechanical Engineering
BEng/HND/C/DipHE/CertHE Mechanical & Manufacturing Engineering
BSc/HND/C/DipHE/CertHE Engineering Management

LEVEL 6

WALES INSTITUTE OF SCIENCE & ART

2024-2025

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INTRODUCTION

This handbook provides you with information about your Programme of Study for the academic year 2024/25. Module descriptors are presented in the accompanying Module Directory document.

The University has made every effort to make the information as full and as accurate as possible, but you should note that minor changes in the organisation of modules between the planning stage and the actual teaching are inevitable. We shall try to keep any such changes to a minimum, and you will receive advance warning in the event of any alteration.

FEEDBACK

Feedback on your programme of study and modules is welcome and important and will help us to improve and enhance your learning experience. You can give feedback in a number of ways: through the academic representatives for your programme of study, through module evaluation questionnaires, through informal meetings with your academic support tutor, teaching staff, or Programme Manager, through focus groups to gain feedback from students on particular issues, or through the Students' Union. If there are issues, then it is important that you share these with us so that we can address them. We would also be grateful if you would let us know about any changes that you think might be helpful if introduced into future handbooks. Your opinion is valued.

PROGRAMMES OF STUDY AND PROGRAMME MANAGERS

This handbook covers the following Programmes of Study. The name and contact details of the Programme Managers are also listed below.

Programme of Study	Programme Manager	Tel. No.	E-mail
BEng/HND/C Advanced Manufacturing & Operations	Arnaud Marotin	+441792481000 x3362	arnaud.marotin@uwtsd.ac.uk
BEng/HND/C Energy & Environmental Engineering	Kelvin Lake	+441792481000 x4319	kelvin.lake@uwtsd.ac.uk
BEng/HND/C Manufacturing Systems Engineering	Arnaud Marotin	+441792481000 x3362	arnaud.marotin@uwtsd.ac.uk
BEng/HND/C Materials Science	Arnaud Marotin	+441792481000 x3362	arnaud.marotin@uwtsd.ac.uk
BEng/HND/C Mechanical Engineering	Jordan Jenkins	+441792481000	j.jenkins@uwtsd.ac.uk
BEng/HND/C Mechanical & Manufacturing Engineering	Jordan Jenkins	+441792481000	j.jenkins@uwtsd.ac.uk
BSc/HND/C Engineering Management	Andrew Thorn	+441792481000 x4321	andrew.thorn@uwtsd.ac.uk

SUPPORT DURING YOUR STUDIES

A member of staff will be identified at the beginning of the academic year to act as a point of first contact for support issues. Further support can also be accessed through the Student Services department.

EXTERNAL EXAMINERS

All taught Programmes of Study which lead to an award of the University have at least one External Examiner. The principal purposes of the University's external examiner system are to ensure that:

- the standard of each award is maintained at the appropriate level;
- the standards of student performance are comparable with standards on similar programmes or subjects in other UK institutions with which they are familiar;
- the processes for assessment and the determination of awards are sound and fairly conducted.

Students may request a copy of the previous year's External Examiner's Report for their programme of study by contacting the Programme Manager.

The current External Examiners for the Programmes of Study are:

Programme of Study	**External Examiner for 2024/25 (forename/surname)**	**External Examiner for 2023/24 (if different to current)**
BEng/HND/C Advanced Manufacturing & Operations	Dr Benjamin Lishman	
BEng/HND/C Energy & Environmental Engineering	Dr Benjamin Lishman	
BEng/HND/C Manufacturing Systems Engineering	Dr Benjamin Lishman	
BEng/HND/C Materials Science	Dr Benjamin Lishman	
BEng/HND/C Mechanical Engineering	Dr Benjamin Lishman	
BEng/HND/C Mechanical & Manufacturing Engineering	Dr Benjamin Lishman	
BSc/HND/C Engineering Management	Dr Benjamin Lishman	

Please note that students are not permitted to make direct contact with the External Examiners without permission and to do so may be considered a disciplinary offence.

ACADEMIC YEAR 2024/25

The academic year 2024/25 will be divided up as follows:

Semester 1:	23/09/24 - 24/01/25
Semester 2:	27/01/25 - 06/06/25

INFORMATION ABOUT YOU AND YOUR PROGRAMME OF STUDY

Information about you and your programme of study is held by the University on a central Student Record System managed by the University Registry. It is essential that the University Registry has an accurate record of your personal details at all times. It is equally important to ensure that you are enrolled on the correct Programme of Study and on the correct modules and that you read and agree to the Enrolment Agreement.

My Student Record / MyTSD

You can view your personal details on MyTSD and make requests to amend data when your circumstances change. It is important to keep your personal details up to date. You can use MyTSD to:

- enrol for the new academic year
- generate a 'Confirmation of enrolment' letter
- generate a council tax exemption letter and/or bank letter
- view enrolment and module registration details
- amend your address
- check your financial information (e.g. fees due)
- submit a programme change request
- apply for 'Extenuating Circumstances'
- check your module results and examining board decision
- request to withdraw from your studies
- register to attend your graduation ceremony (when applicable)

Failure to keep your personal details up to date can result in a range of problems including:

- delays in obtaining your student loan;
- failure to contact you in an emergency;
- not being able to borrow materials from the Library and Learning Resources; and
- not being able to use the Information Technology services;
- potential non-compliance with visa regulations.

Please take time to check your enrolment details on MyTSD.

DISCLOSURE AND BARRING SERVICE (DBS) – ENHANCED

If your programme involves you coming into contact with children or vulnerable adults, you will be required to undertake a DBS check (Enhanced). Further details will be provided by the Admissions Team. All DBS related queries should be directed to dbs@uwtsd.ac.uk.

You will also be asked to complete a formal self-declaration during the enrolment period at the beginning of the academic year, which confirms your criminal conviction status.

MODULAR TERMINOLOGY

Level (of Study):

A level is assigned to each module to define the standard of its academic demand in line with the National Qualifications Framework which incorporates both Further Education and Higher Education.

The level is not necessarily synonymous with a year, though very often Level 4 will be the first year of a Programme of Study, Level 6 will be the second year, and Level 6 will be the third year. The basic characteristics of the relevant levels of study are outlined by the Welsh Assembly government and available on their website:
https://gov.wales/sites/default/files/publications/2018-02/level-descriptors.pdf

ASSESSMENT

At the start of each module, tutors will provide on Moodle full details of the means by which you will be assessed in that module. This will include a full assessment brief and guidelines on the criteria that will be used for marking your work as well as clear information about when the assessments are due and the turn-around feedback time for the assessments. It will also detail how you will be able to discuss the feedback on your work and your performance and what to do if you have any questions.

All assessed written coursework needs to be submitted in electronic copy via Turnitin; alternative instructions will be provided by the Programme Manager for any forms of coursework that cannot be submitted via Turnitin.

The University offers programmes in both English and Welsh. The normal expectation is that you will be assessed in the same language in which the programme or modules are delivered. If you have been taught in English and wish to be assessed in Welsh, or vice versa, you should consult your Programme Manager about the options available to you.

You will receive confirmation of your assessment marks at the end of each year. Any marks released prior to formal approval by the Examining Board are provisional.

Extenuating Circumstances

If you believe that there are extenuating circumstances which may have adversely affected your ability to complete coursework or examinations, you should follow the University's procedures for Extenuating Circumstances for Taught Provision, which can be found on the University's website and forms part of the *Mitigating Circumstances Policy*:
https://www.uwtsd.ac.uk/academic-quality-handbook

Additional needs in terms of assessment

If you have any additional needs in terms of assessment, it is your responsibility to liaise with Student Services regarding those needs at the start of the academic year, so that a Statement of Compensatory Measures can be drafted in line with the University's procedures for assessment of students with additional needs: https://www.uwtsd.ac.uk/experience-facilities/student-support-wellbeing/disability-support

Academic Appeals
Information about how to appeal is provided in the 'Academic Appeal Procedure' which forms part of the *Academic Appeal Policy* associated with Chapter 12 of the Academic Quality Handbook, and in supporting documentation published on the Academic Office section on the University's website:
https://www.uwtsd.ac.uk/academic-quality-handbook

Additional advice is available from the Students' Union. It is very important that you note carefully the grounds on which appeals may be made and submit your appeal on the appropriate form because incomplete or ineligible appeals cannot be processed.

Assessment Regulations
The rules and regulations that govern the assessment of your Programme of Study are available in Chapters 6 and 7 of the University's Academic Quality Handbook, a copy of which is available on the Academic Office section of the website:
https://www.uwtsd.ac.uk/academic-quality-handbook

Responsibilities of students in relation to the assessment process
You are responsible for ensuring that:

i) You are correctly enrolled on your programme of study (including re-enrolment for each academic year after initial enrolment).
ii) You read and understand the information provided about how you will be assessed, how your final award will be determined, and the action to take in the event that you experience difficulties relating to assessment.
iii) You attempt every assessment component of a module.
iv) You attend examinations and other assessment events, including re-examination and re-assessment events, as required; and that you are available to attend oral examinations if required to do so within the published dates of terms or semesters, or other date notified to you in advance.
v) You submit work for assessment as required and in accordance with the required format and deadline.
vi) You inform your Programme Manager or Student Services of any disability or long-term impairment which might require special provisions for assessment.
vii) You familiarise yourself with the University's definition of academic misconduct and undertake assessments in a manner that does not attempt to gain unfair advantage.
viii) You follow the prescribed procedures in the event that you experience extenuating circumstances or wish to appeal against the decision of an Examining Board.
ix) You keep copies of all drafts of work presented or submitted for assessment wherever feasible.
x) You make your work available for sampling for external examining purposes.

VIRTUAL LEARNING ENVIRONMENT (VLE)

Moodle is the University's Virtual Learning Environment (VLE). The VLE is used to support learning and teaching. It can be accessed by **enrolled** students from anywhere in the world using the internet and a web browser.

Some of Moodle's features allow students to:

- Access course materials
- Facilitate communication between students and tutors - this may also take place via Microsoft Teams
- Support group tasks
- Take online assessments with automatic marking and feedback facilities

Moodle can be used for administration tasks such as:

- Displaying announcements e.g. lecture venue changed
- Submission of assignments electronically
- Administration of online surveys, such as module questionnaires

How to Access:

You can access Moodle in 3 different ways:

1. From Hwb - Access your Hwb dashboard either by logging into a campus PC and opening Microsoft Edge browser, or accessing https://hwb.uwtsd.ac.uk from any browser on an internet-connected device. Click on the Moodle tile.
2. From the University Website - navigate to https://uwtsd.ac.uk/ and select Current Students (top right side of screen) and then Moodle.
3. URL Input - Open any browser on an internet-connected device and navigate to https://moodle.uwtsd.ac.uk

If you are already signed into the Hwb or Office 365 you should be automatically signed into Moodle when you connect, if not log in using your Network username and password which are the same as used to access a campus PC.

If you are missing any modules from your Moodle homepage, please contact your **lecturers** to ask if they use Moodle. Please note it can take 24hrs for enrolment data to feed into Moodle. If you have problems finding resources (timetables, lecture notes, assignment briefs etc.) please contact the **lecturer** that delivers the course/module.

For any technical issues or error messages contact the **IT Service Desk** via:
Web: https://webhelp.uwtsd.ac.uk
Tel: 0300 500 5055
Or email: ITServiceDesk@uwtsd.ac.uk
In any correspondence please include your name and username (your student number) together with details of your issue, and include screenshots of any error messages

Further information on using online and digital resources can be found at https://digitallearning.uwtsd.ac.uk/

ASSESSMENT FEEDBACK VIA TURNITIN

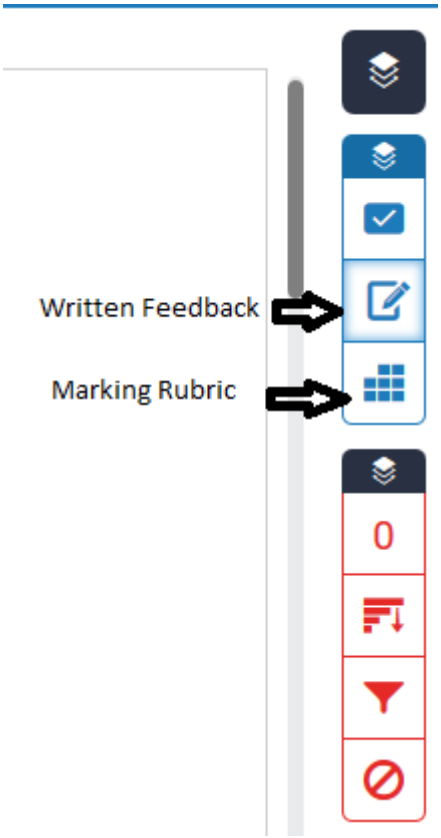
For feedback provided through Turnitin, there are two areas to get your feedback: written feedback, and the marking rubric.

Written feedback will comment on the overall work.

The marking rubric will focus on how the piece of work meets the criteria listed in the relevant rubric.

The marking rubric does not give a mathematically calculated result based on the sum of individual components, but is used holistically to help determine the mark.

Written Feedback and the Marking Rubric can be found by clicking the buttons as shown when you view your submitted assignment in Turnitin.



PROGRAMMES OF STUDY

(1) BEng/HND/C/DHE/CHE Advanced Manufacturing Operations (PT)

The programme has the following general educational and specific aims:

To produce graduates who will:

- be able to establish and implement a quality culture within the manufacturing environment
- supervise the work of manufacturing engineers, trainee engineers and support staff
- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality;
- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner;
- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the advanced manufacturing and operations industry;
- be familiar with the nature of business and enterprise in the creation of economic and social value;
- appreciate the global dimensions of advanced manufacturing and operations, commerce and communication;
- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;
- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BEng Advanced Manufacturing Operations

Underpinning Mathematics, Science and Associated Disciplines (MSAD)

MSAD1 Demonstrate their knowledge and understanding of scientific principles and methodology necessary to underpin their education in manufacturing and operations and associated disciplines, to enable appreciation of its operational context and to support their understanding of future developments and technologies.

MSAD2 Demonstrate their knowledge and understanding of mathematical principles necessary to underpin their education in manufacturing and

operations and associated disciplines and to enable them to apply mathematical methods, tools and notations proficiently in the analytical and numerical solution of manufacturing and operational problems.

MSAD3 Exhibit an ability to apply and integrate knowledge and understanding of quality improvement to support the study of manufacturing and operation and associated disciplines.

Manufacturing and Operations Analysis (MA)

MA1 Demonstrate their knowledge and understanding of manufacturing and operation principles and the ability to apply them to analyse key operational processes.

MA2 Demonstrate an ability to identify, classify and describe the performance of systems and operations using analytical methods and modelling techniques.

MA3 Demonstrate an ability to apply quantitative methods and computer software relevant to manufacturing and operations and related disciplines, to solve operational problems.

MA4 Demonstrate an understanding of and an ability to apply a systems approach to manufacturing and operations.

Design (D)

D1 Investigate and define a problem and identify constrains including environmental and sustainability limitations, health and safety and risk assessment issues.

D2 Demonstrate an understanding of customer and user needs and the importance of considerations such as aesthetics.

D3 Identify and manage cost drivers.

D4 Use creativity to establish innovative solutions.

D5 Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal.

D6 Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1 Demonstrate their knowledge and understanding of commercial and economic context of engineering processes.

ES2 Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.

ES3 Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.

ES4 Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

ES5 Demonstrate their understanding of the need for a high level of professional and ethical conduct in engineering.

Engineering Practice (EP)

EP1 Demonstrate their knowledge of characteristics of particular equipment, processes or products.

EP2 Demonstrate engineering workshop and laboratory skills.

EP3 Demonstrate their understanding of contexts in which manufacturing knowledge can be applied (e.g. operations and management, technology, development, etc.)
EP4 Demonstrate their ability to use technical literature and other information sources.
EP5 Demonstrate an awareness of nature of intellectual property and contractual issues.
EP6 Demonstrate an understanding of appropriate codes of practice and industry standards.
EP7 Demonstrate an awareness of quality issues.
EP8 Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 2: HND/DipHE Advanced Manufacturing Operations

Underpinning Mathematics, Science and Associated Disciplines (MSAD)

MSAD1b Demonstrate their knowledge and understanding of scientific necessary to underpin their education in manufacturing and operations and associated disciplines,
MSAD2b Demonstrate their knowledge and understanding of mathematical principles necessary to support application of key manufacturing and operation principles.

Manufacturing and Operations Analysis (MA)

MA1b Demonstrate an ability to monitor, interpret and apply the results of analysis in order to bring about continuous improvement
MA2b Demonstrate an ability to apply quantitative methods in order to understand the performance of systems.
MA3b Demonstrate an ability to apply a systems approach to manufacturing and operation problems.

Design (D)

D1b Demonstrate an ability to define a problem and identify constraints such as environmental and sustainability limitations, health, safety risk assessment issues.
D1b Demonstrate an awareness of customer and user needs and the importance of considerations such as aesthetics.
D3b Identify and manage cost drivers.
D4b Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1b Demonstrate their knowledge of management techniques which may be used to achieve manufacturing and operations objectives within that context.
ES2b Demonstrate their understanding of the requirement for manufacturing and operations activities to promote sustainable development.
ES3b Demonstrate an awareness of the framework of relevant legal requirements governing manufacturing and operations activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1b Demonstrate an understanding of characteristics of particular equipment, processes or products.
EP2b Demonstrate engineering workshop and laboratory skills.
EP3b Demonstrate their ability to use technical literature and other information sources.
EP4b Demonstrate an ability to use appropriate codes of practice and industry standards.
EP5b Demonstrate an awareness of quality issues.
EP6b Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 1: HNC/CertHE Advanced Manufacturing Operations

Underpinning Mathematics, Science and Associated Disciplines (MSAD)

MSAD1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of manufacturing and operations and its underpinning science and mathematics.

Manufacturing and Operations Analysis (MA)

MA1c Demonstrate an ability to apply appropriate quantitative science and engineering tools to the analysis of manufacturing and operations.

Design (D)

D1c Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1c Demonstrate an awareness of the framework of relevant legal requirements governing manufacturing and operations activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1c Demonstrate engineering workshop and laboratory skills.
EP2c Demonstrate their ability to use technical literature and other information sources.
EP3c Demonstrate an ability to use appropriate codes of practice and industry standards.

To support iMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 6

All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

Modules

PROGRAMME STRUCTURE

Structure: Part-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 1	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4006	Engineering Mathematics	Compulsory	20
Year 1	**Level 4**	**Semester 1&2**	**Sept. to July**
ACMA4007	Engineering Applications and Study Skills	Core	20
ACMA4002	Plant Operations and Performance	Compulsory	20
Year 1	**Level 4**	**Semester 2&3**	**Feb. to Aug**
ACMA4004	Quality and Business Improvement	Compulsory	20
Year 2	**Level 4**	**Semester 1**	**Sept. to July**
ACMA4003	Project Design	Compulsory	20
ACMA4000	Materials and Introduction to Processing	Compulsory	20
Year 2	**Level 5**	**Semester 2**	**Feb. to July**
ACMA5002	Manufacturing Design and Technology	Compulsory	20
ACMA5007	Management, Innovation and Sustainability	Core	20
Year 2/3	**Level 5**	**Semester 3&1**	**July to Feb**
ACMA5000	Group Industrial Project	Core	40
Year 3	**Level 5**	**Semester 1&2**	**Sept to July**
ACMA5001	Control and Automation	Compulsory	20
ACMB5005	Six Sigma Green Belt	Compulsory	20
Year 3	**Level 6**	**Semester 2&3**	**Feb to Aug**
ACMA6001	Control Technology	**Compulsory**	**20**
Year 3	**Level 6**	**Semester 3&1**	**July to Feb**
ACMA6002	Manufacturing Systems and Simulation	Compulsory	20
Year 4	**Level 6**	**Semester 1**	**Sept to Feb**
ACMA6012	Computational Methods (component pass)	Core	20
Year 4	**Level 6**	**Semester 1&2**	**Sept - July**
ACMA6013	Independent Project	Compulsory	40
Year 4	**Level 6**	**Semester 2**	**Feb – July**
ACMA6007	Plant and Asset Engineering	Compulsory	20

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

(2) BEng/HND/C/DHE/CHE Energy & Environmental Engineering

The programme has the following general educational and specific aims:

To produce graduates who will:

- be able to solve societal and industrial problems in the fields of energy conversion and use, as well as process engineering and environment;
- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality;
- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner;
- be skilled at solving problems by applying their numerical, computational, analytical and technical skills, using appropriate tools;
- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the energy and environmental industry;
- be familiar with the nature of business and enterprise in the creation of economic and social value;
- appreciate the global dimensions of energy and environmental engineering, commerce and communication;
- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;
- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BEng Energy & Environmental Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1 Demonstrate their knowledge and understanding of scientific principles and methodology necessary to underpin their education in energy, environmental and related engineering disciplines, to enable appreciation of its scientific and engineering context and to support their understanding of future developments and technologies.

MSED2 Demonstrate their knowledge and understanding of mathematical principles necessary to underpin their education in energy, environmental and related engineering disciplines and to enable them to apply mathematical methods, tools and notations proficiently in the analytical and numerical solution of engineering problems.

MSED3 Exhibit an ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of energy, environmental and related engineering disciplines.

Engineering Analysis (EA)

EA1 Demonstrate their knowledge and understanding of engineering principles and the ability to apply them to analyse key engineering processes.

EA2 Demonstrate an ability to identify, classify and describe the performance of systems and components using analytical methods and modelling techniques.

EA3 Demonstrate an ability to apply quantitative methods and computer software relevant to mechanical and related engineering disciplines, to solve engineering problems.

EA4 Demonstrate an understanding of and an ability to apply a systems approach to engineering problems.

Design (D)

D1 Investigate and define a problem and identify constrains including environmental and sustainability limitations, health and safety and risk assessment issues.

D2 Demonstrate an understanding of customer and user needs and the importance of considerations such as aesthetics.

D3 Identify and manage cost drivers.

D4 Use creativity to establish innovative solutions.

D5 Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal.

D6 Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1 Demonstrate their knowledge and understanding of commercial and economic context of engineering processes.

ES2 Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.

ES3 Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.

ES4 Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

ES5 Demonstrate their understanding of the need for a high level of professional and ethical conduct in engineering.

Engineering Practice (EP)

EP1 Demonstrate their knowledge of characteristics of particular equipment, processes or products.

EP2 Demonstrate engineering workshop and laboratory skills.

EP3 Demonstrate their understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc.).
EP4 Demonstrate their ability to use technical literature and other information sources.
EP5 Demonstrate an awareness of nature of intellectual property and contractual issues.
EP6 Demonstrate an understanding of appropriate codes of practice and industry standards.
EP7 Demonstrate an awareness of quality issues.
EP8 Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 2: HND/DipHE Energy & Environmental Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1b Demonstrate their knowledge and understanding of scientific necessary to underpin their education in energy, environmental and related engineering disciplines,
MSED2b Demonstrate their knowledge and understanding of mathematical principles necessary to support application of key engineering principles.

Engineering Analysis (EA)

EA1b Demonstrate an ability to monitor, interpret and apply the results of analysis in order to bring about continuous improvement
EA2b Demonstrate an ability to apply quantitative methods in order to understand the performance of systems and components.
EA3b Demonstrate an ability to apply a systems approach to engineering problems.

Design (D)

D1b Demonstrate an ability to define a problem and identify constraints such as environmental and sustainability limitations, health, safety risk assessment issues.
D1b Demonstrate an awareness of customer and user needs and the importance of considerations such as aesthetics.
D3b Identify and manage cost drivers.
D4b Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1b Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES2b Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES3b Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1b Demonstrate an understanding of characteristics of particular equipment, processes or products.
EP2b Demonstrate engineering workshop and laboratory skills.
EP3b Demonstrate their ability to use technical literature and other information sources.
EP4b Demonstrate an ability to use appropriate codes of practice and industry standards.
EP5b Demonstrate an awareness of quality issues.
EP6b Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 1: HNC/CertHE Energy & Environmental Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of energy and environmental engineering and its underpinning science and mathematics.

Engineering Analysis (EA)

EA1c Demonstrate an ability to apply appropriate quantitative science and engineering tools to the analysis of engineering problems.

Design (D)

D1c Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1c Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1c Demonstrate engineering workshop and laboratory skills.
EP2c Demonstrate their ability to use technical literature and other information sources.
EP3c Demonstrate an ability to use appropriate codes of practice and industry standards.

To support iMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 6

All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Full-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 3	**Level 6**	**Semester 1&2**	**Sept- July**
ACMA6006	Environmental Pollution Control	Compulsory	20
ACMA6007	Plant & Asset Engineering	Compulsory	20
ACMA6010	Structural and Fluid Analysis	Compulsory	20
ACMA6012	Computational Methods (Component Pass)	Core	20
ACMA6013	Independent Project	Compulsory	40

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

(3) BEng/HND/C/DHE/CHE Manufacturing Systems Engineering (PT)

The programme has the following general educational and specific aims:

To produce graduates who will:

- be able to oversee and manage a project from start to finish;
- be able to liaise with designers, researchers and engineering consultants;
- be able to design, develop and install plant control systems;
- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality;
- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner;
- be skilled at solving problems by applying their numerical, computational, analytical and technical skills, using appropriate tools;
- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the manufacturing systems industry;
- be familiar with the nature of business and enterprise in the creation of economic and social value;

- appreciate the global dimensions of manufacturing systems engineering, commerce and communication;
- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;

- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BEng Manufacturing Systems Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1 Demonstrate their knowledge and understanding of scientific principles and methodology necessary to underpin their education in manufacturing systems and related engineering disciplines, to enable appreciation of its scientific and engineering context and to support their understanding of future developments and technologies.

MSED2 Demonstrate their knowledge and understanding of mathematical principles necessary to underpin their education in manufacturing systems and related engineering disciplines and to enable them to apply mathematical methods, tools and notations proficiently in the analytical and numerical solution of engineering problems.

MSED3 Exhibit an ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of manufacturing systems and related engineering disciplines.

Engineering Analysis (EA)

EA1 Demonstrate their knowledge and understanding of engineering principles and the ability to apply them to analyse key engineering processes.

EA2 Demonstrate an ability to identify, classify and describe the performance of systems and components using analytical methods and modelling techniques.

EA3 Demonstrate an ability to apply quantitative methods and computer software relevant to mechanical and related engineering disciplines, to solve engineering problems.

EA4 Demonstrate an understanding of and an ability to apply a systems approach to engineering problems.

Design (D)

D1 Investigate and define a problem and identify constrains including environmental and sustainability limitations, health and safety and risk assessment issues.

D2 Demonstrate an understanding of customer and user needs and the importance of considerations such as aesthetics.

D3 Identify and manage cost drivers.

D4 Use creativity to establish innovative solutions.

D5 Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal. D6 Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1 Demonstrate their knowledge and understanding of commercial and economic context of engineering processes.
ES2 Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES3 Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES4 Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.
ES5 Demonstrate their understanding of the need for a high level of professional and ethical conduct in engineering.

Engineering Practice (EP)

EP1 Demonstrate their knowledge of characteristics of particular equipment, processes or products.
EP2 Demonstrate engineering workshop and laboratory skills.
EP3 Demonstrate their understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc.).
EP4 Demonstrate their ability to use technical literature and other information sources.
EP5 Demonstrate an awareness of nature of intellectual property and contractual issues.
EP6 Demonstrate an understanding of appropriate codes of practice and industry standards.
EP7 Demonstrate an awareness of quality issues.
EP8 Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 2: HNC/DipHE Manufacturing Systems Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1b Demonstrate their knowledge and understanding of scientific necessary to underpin their education in manufacturing systems and related engineering disciplines,
MSED2b Demonstrate their knowledge and understanding of mathematical principles necessary to support application of key engineering principles.

Engineering Analysis (EA)

EA1b Demonstrate an ability to monitor, interpret and apply the results of analysis in order to bring about continuous improvement

EA2b Demonstrate an ability to apply quantitative methods in order to understand the performance of systems and components.
EA3b Demonstrate an ability to apply a systems approach to engineering problems.

Design (D)

D1b Demonstrate an ability to define a problem and identify constraints such as environmental and sustainability limitations, health, safety risk assessment issues.
D1b Demonstrate an awareness of customer and user needs and the importance of considerations such as aesthetics.
D3b Identify and manage cost drivers.
D4b Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1b Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES2b Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES3b Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1b Demonstrate an understanding of characteristics of particular equipment, processes or products.
EP2b Demonstrate engineering workshop and laboratory skills.
EP3b Demonstrate their ability to use technical literature and other information sources.
EP4b Demonstrate an ability to use appropriate codes of practice and industry standards.
EP5b Demonstrate an awareness of quality issues.
EP6b Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 1: HNC/CertHE Manufacturing Systems Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of manufacturing systems engineering and its underpinning science and mathematics.

Engineering Analysis (EA)

EA1c Demonstrate an ability to apply appropriate quantitative science and engineering tools to the analysis of engineering problems.

Design (D)

D1c Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1c Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1c Demonstrate engineering workshop and laboratory skills.
EP2c Demonstrate their ability to use technical literature and other information sources.
EP3c Demonstrate an ability to use appropriate codes of practice and industry standards.

To support IMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 6

All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Part-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 1	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4006	Engineering Mathematics	Compulsory	20
Year 1	**Level 4**	**Semester 1&2**	**Sept. to July**
ACMA4007	Engineering Applications and Study Skills (Component Pass)	Core	20
Year 1	**Level 4**	**Semester 2**	**Feb to July**
ACDB4002	Electrical and Electronic Principles	Compulsory	20
Year 1	**Level 4**	**Semester 2&3**	**Feb to Aug**
ACHA4002	Engineering Science	Compulsory	20
Year 2	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4000	Materials and Introduction to Processing	Compulsory	20
ACMA4008	Engineering Design	Compulsory	20
Year 2	**Level 5**	**Semester 2**	**Feb. to July**

ACMA5007	Management, Innovation and Sustainability (Component Pass)	Core	20
ACMA5009	Group Project (Component Pass)	Core	20
ACMA5002	Manufacturing Design and Technology	Compulsory	20
Year 2	**Level 5**	**Semester 3&1**	**July – Feb**
ACMA5010	Stress Analysis and Dynamics	Compulsory	20
Year 3	**Level 5**	**Semester 1&2**	**Sept to July**
ACMA5001	Control and Automation	Compulsory	20
ACMB5005	Six Sigma Green Belt	Compulsory	20
Year 3	**Level 6**	**Semester 2&3**	**Feb to Aug**
ACMA6001	Control Technology	Compulsory	20
Year 3	**Level 6**	**Semester 3&1**	**July – Feb**
ACMA6002	Manufacturing Systems and Simulation	Compulsory	20
Year 4	**Level 6**	**Semester 1**	**Sept to Feb**
ACMA6012	Computational Methods (Component Pass)	Core	20
Year 4	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6013	Independent Project	Compulsory	40
Year 4	**Level 6**	**Semester 2**	**Feb to July**
ACMA6007	Plant and Asset Engineering	Compulsory	20

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

(4) BEng/HND/C/DHE/CHE Materials Science (PT)

The programme has the following general educational and specific aims:

To produce graduates who will:

- be able to determine the physical and mechanical behaviour of materials to optimise manufactured products;
- understand the structure, properties, processing, and service behaviour of engineering materials;
- be able to appraise and evaluate the characteristics and behaviour of engineering materials related to component design, material selection and structural integrity of mechanical systems;
- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality;
- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner;
- be skilled at solving problems by applying their numerical, computational, analytical and technical skills, using appropriate tools;

- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the materials science industry;

- be familiar with the nature of business and enterprise in the creation of economic and social value;

- appreciate the global dimensions of materials science systems, commerce and communication;

- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;

- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BEng Materials Science

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1 Demonstrate their knowledge and understanding of scientific principles and methodology necessary to underpin their education in materials science and related engineering disciplines, to enable appreciation of its scientific and engineering context and to support their understanding of future developments and technologies.

MSED2 Demonstrate their knowledge and understanding of mathematical principles necessary to underpin their education in materials science and related engineering disciplines and to enable them to apply mathematical methods, tools and notations proficiently in the analytical and numerical solution of engineering problems.

MSED3 Exhibit an ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of materials and related engineering disciplines.

Engineering Analysis (EA)

EA1 Demonstrate their knowledge and understanding of engineering principles and the ability to apply them to analyse key engineering processes.

EA2 Demonstrate an ability to identify, classify and describe the performance of systems and components using analytical methods and modelling techniques.

EA3 Demonstrate an ability to apply quantitative methods and computer software relevant to mechanical and related engineering disciplines, to solve engineering problems.

EA4 Demonstrate an understanding of and an ability to apply a systems approach to engineering problems.

Design (D)

D1 Investigate and define a problem and identify constrains including environmental and sustainability limitations, health and safety and risk assessment issues.
D2 Demonstrate an understanding of customer and user needs and the importance of considerations such as aesthetics.
D3 Identify and manage cost drivers.
D4 Use creativity to establish innovative solutions.
D5 Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal.
D6 Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1 Demonstrate their knowledge and understanding of commercial and economic context of engineering processes.
ES2 Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES3 Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES4 Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.
ES5 Demonstrate their understanding of the need for a high level of professional and ethical conduct in engineering.

Engineering Practice (EP)

EP1 Demonstrate their knowledge of characteristics of particular equipment, processes or products.
EP2 Demonstrate engineering workshop and laboratory skills.
EP3 Demonstrate their understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc.).
EP4 Demonstrate their ability to use technical literature and other information sources.
EP5 Demonstrate an awareness of nature of intellectual property and contractual issues.
EP6 Demonstrate an understanding of appropriate codes of practice and industry standards.
EP7 Demonstrate an awareness of quality issues.
EP8 Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 2: HND/DipHE Materials Science

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1b Demonstrate their knowledge and understanding of scientific necessary to underpin their education in materials science and related engineering disciplines,
MSED2b Demonstrate their knowledge and understanding of mathematical principles necessary to support application of key engineering principles.

Engineering Analysis (EA)

EA1b Demonstrate an ability to monitor, interpret and apply the results of analysis in order to bring about continuous improvement
EA2b Demonstrate an ability to apply quantitative methods in order to understand the performance of systems and components.
EA3b Demonstrate an ability to apply a systems approach to engineering problems.

Design (D)

D1b Demonstrate an ability to define a problem and identify constraints such as environmental and sustainability limitations, health, safety risk assessment issues.
D1b Demonstrate an awareness of customer and user needs and the importance of considerations such as aesthetics.
D3b Identify and manage cost drivers.
D4b Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1b Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES2b Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES3b Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1b Demonstrate an understanding of characteristics of particular equipment, processes or products.
EP2b Demonstrate engineering workshop and laboratory skills.
EP3b Demonstrate their ability to use technical literature and other information sources.
EP4b Demonstrate an ability to use appropriate codes of practice and industry standards.
EP5b Demonstrate an awareness of quality issues.
EP6b Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 1: HNC/CertHE Materials Science

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of materials and its underpinning science and mathematics.

Engineering Analysis (EA)

EA1c Demonstrate an ability to apply appropriate quantitative science and engineering tools to the analysis of engineering problems.

Design (D)

D1c Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1c Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1c Demonstrate engineering workshop and laboratory skills.
EP2c Demonstrate their ability to use technical literature and other information sources.
EP3c Demonstrate an ability to use appropriate codes of practice and industry standards.

To support iMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 6

All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Structure: Part-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 1	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4006	Engineering Mathematics	Compulsory	20
Year 1	**Level 4**	**Semester 1&2**	**Sept. to July**
ACMA4007	Engineering Applications and Study Skills (Component Pass)	Core	20
Year 1	**Level 4**	**Semester 2**	**Feb to July**
ACMA4001	Physical Science for Materials	Compulsory	20
Year 1	**Level 4**	**Semester 2&3**	**Feb to Aug**

ACHA4002	Engineering Science	Compulsory	20
Year 2	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4000	Materials and Introduction to Processing	Compulsory	20
ACMA4008	Engineering Design	Compulsory	20
Year 2	**Level 5**	**Semester 2**	**Feb to July**
ACMA5007	Management, Innovation and Sustainability (Component Pass)	Core	20
ACMA5009	Group Project (Component Pass)	Core	20
ACMA5002	Manufacturing Design and Technology	Compulsory	20
Year 2	**Level 5**	**Semester 3&1**	**July to Feb**
ACMA5006	Structure and Properties of Materials	Compulsory	20
ACMA5004	Materials in Service	Compulsory	20
Year 3	**Level 5/6**	**Semester 1&2**	**Sept to July**
ACMB5005	Six Sigma Green Belt	Compulsory	20
ACMA6004	Metallurgy of Non-Ferrous Alloys	Compulsory	20
Year 3	**Level 6**	**Semester 3&1**	**July to Feb**
ACMA6002	Manufacturing Systems and Simulation	Compulsory	20
Year 4	**Level 6**	**Semester 1**	**Sept to Feb**
ACMA6009	Welding Engineering	Compulsory	20
Year 4	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6013	Independent Project	Compulsory	40
Year 4	**Level 6**	**Semester 2**	**Feb to July**
ACMA6005	Metallurgy of Steel	Compulsory	20

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

(5) BEng/HND/C/DHE/CHE Mechanical Engineering

The programme has the following general educational and specific aims:

To produce graduates who will:

- apply their knowledge of physics, mechanics, materials science, heat transfer and thermodynamics to the study of a mechanical system
- function and communicate effectively both as individuals and in multidisciplinary teams to solve technical problems.
- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality;

- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner;

- be skilled at solving problems by applying their numerical, computational, analytical and technical skills, using appropriate tools;

- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the mechanical industry;

- be familiar with the nature of business and enterprise in the creation of economic and social value;

- appreciate the global dimensions of mechanical engineering, commerce and communication;

- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;

- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BEng Mechanical Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1 Demonstrate their knowledge and understanding of scientific principles and methodology necessary to underpin their education in mechanical and related engineering disciplines, to enable appreciation of its scientific and engineering context and to support their understanding of future developments and technologies.

MSED2 Demonstrate their knowledge and understanding of mathematical principles necessary to underpin their education in mechanical and related engineering disciplines and to enable them to apply mathematical methods, tools and notations proficiently in the analytical and numerical solution of engineering problems.

MSED3 Exhibit an ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of mechanical and related engineering disciplines.

Engineering Analysis (EA)

EA1 Demonstrate their knowledge and understanding of engineering principles and the ability to apply them to analyse key engineering processes.

EA2 Demonstrate an ability to identify, classify and describe the performance of systems and components using analytical methods and modelling techniques.

EA3 Demonstrate an ability to apply quantitative methods and computer software relevant to mechanical and related engineering disciplines, to solve engineering problems.

EA4 Demonstrate an understanding of and an ability to apply a systems approach to engineering problems.

Design (D)

D1 Investigate and define a problem and identify constrains including environmental and sustainability limitations, health and safety and risk assessment issues.
D2 Demonstrate an understanding of customer and user needs and the importance of considerations such as aesthetics.
D3 Identify and manage cost drivers.
D4 Use creativity to establish innovative solutions.
D5 Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal. D6 Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1 Demonstrate their knowledge and understanding of commercial and economic context of engineering processes.
ES2 Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES3 Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES4 Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.
ES5 Demonstrate their understanding of the need for a high level of professional and ethical conduct in engineering.

Engineering Practice (EP)

EP1 Demonstrate their knowledge of characteristics of particular equipment, processes or products.
EP2 Demonstrate engineering workshop and laboratory skills.
EP3 Demonstrate their understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc.).
EP4 Demonstrate their ability to use technical literature and other information sources.
EP5 Demonstrate an awareness of nature of intellectual property and contractual issues.
EP6 Demonstrate an understanding of appropriate codes of practice and industry standards.
EP7 Demonstrate an awareness of quality issues.
EP8 Demonstrate an ability to work with technical uncertainty

Intermediate/Exit Award 2: HND/Dip HE Mechanical Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1b Demonstrate their knowledge and understanding of scientific necessary to underpin their education in mechanical and related engineering disciplines,

MSED2b Demonstrate their knowledge and understanding of mathematical principles necessary to support application of key engineering principles.

Engineering Analysis (EA)

EA1b Demonstrate an ability to monitor, interpret and apply the results of analysis in order to bring about continuous improvement

EA2b Demonstrate an ability to apply quantitative methods in order to understand the performance of systems and components.

EA3b Demonstrate an ability to apply a systems approach to engineering problems.

Design (D)

D1b Demonstrate an ability to define a problem and identify constraints such as environmental and sustainability limitations, health, safety risk assessment issues.

D1b Demonstrate an awareness of customer and user needs and the importance of considerations such as aesthetics.

D3b Identify and manage cost drivers.

D4b Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1b Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.

ES2b Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.

ES3b Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1b Demonstrate an understanding of characteristics of particular equipment, processes or products.

EP2b Demonstrate engineering workshop and laboratory skills.

EP3b Demonstrate their ability to use technical literature and other information sources.

EP4b Demonstrate an ability to use appropriate codes of practice and industry standards.

EP5b Demonstrate an awareness of quality issues.

EP6b Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 1: HNC/CertHE Mechanical Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of mechanical engineering and its underpinning science and mathematics.

Engineering Analysis (EA)

EA1c Demonstrate an ability to apply appropriate quantitative science and engineering tools to the analysis of engineering problems.

Design (D)

D1c Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1c Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1c Demonstrate engineering workshop and laboratory skills.
EP2c Demonstrate their ability to use technical literature and other information sources.
EP3c Demonstrate an ability to use appropriate codes of practice and industry standards.

To support iMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 6
All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Full-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 3	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6000	Advanced Processes & Materials (Component Pass)	Core	20
ACMA6010	Structural and Fluid Analysis	Compulsory	20

ACMA6011	Advanced Thermofluid Mechanics	Compulsory	20
ACMA6012	Computational Methods (Component Pass)	Core	20
ACMA6013	Independent Project	Compulsory	40

Part-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 1	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4006	Engineering Mathematics	Compulsory	20
Year 1	**Level 4**	**Semester 1&2**	**Sept. to July**
ACMA4007	Engineering Applications and Study Skills (Component Pass)	Core	20
Year 1	**Level 4**	**Semester 2**	**Feb. to July**
ACDB4002	Electrical and Electronic Principles	Compulsory	20
Year 1	**Level 4**	**Semester 2&3**	**Feb. to Aug**
ACHA4002	Engineering Science	Compulsory	20
Year 2	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4000	Materials and Introduction to Processing	Compulsory	20
ACMA4008	Engineering Design	Compulsory	20
Year 2	**Level 5**	**Semester 2**	**Feb. to July**
ACMA5007	Management, Innovation and Sustainability (Component Pass)	Core	20
ACMA5009	Group Project (Component Pass)	Core	20
ACMA5002	Manufacturing, Design and Technology	Compulsory	20
Year 2	**Level 5**	**Semester 3&1**	**July to Feb**
ACMA5010	Stress Analysis and Dynamics	Compulsory	20
Year 3	**Level 5**	**Semester 1&2**	**Sept to July**
ACMA5001	Control and Automation	Compulsory	20
ACMA5011	Thermofluid Mechanics	Compulsory	20
Year 3	**Level 6**	**Semester 2&3**	**Feb to Aug**
ACMA6000	Advanced Processes & Materials (Component Pass)	Core	20
Year 3	**Level 6**	**Semester 3&1**	**July to Feb**
ACMA6010	Structural and Fluid Analysis	Compulsory	20
Year 4	**Level 6**	**Semester 1**	**Sept to Feb**
ACMA6012	Computational Methods (Component Pass)	Core	20
Year 4	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6013	Independent Project	Compulsory	40
Year 4	**Level 6**	**Semester 2**	**Feb to July**
ACMA6011	Advanced Thermofluid Mechanics	Compulsory	20

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

(6) BEng/HND/C/DHE/CHE Mechanical & Manufacturing Engineering

The programme has the following general educational and specific aims:

To produce graduates who will:

- be able to create competitive advantage through manufacturing planning, strategy, quality, and control;
- be able to design manufacturing processes that result in products that meet specific material and other requirements;
- be able to design products and the equipment, tooling, and environment necessary for their manufacture.
- be pragmatic, taking a systematic approach and the logical and practical steps necessary for often complex concepts to become reality;
- seek to achieve sustainable solutions to problems and have strategies for being creative, innovative and overcoming difficulties by employing their skills, knowledge and understanding in a flexible manner;
- be skilled at solving problems by applying their numerical, computational, analytical and technical skills, using appropriate tools;
- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the mechanical and manufacturing industry;
- be familiar with the nature of business and enterprise in the creation of economic and social value;
- appreciate the global dimensions of mechanical and manufacturing engineering, commerce and communication;
- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;
- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BEng Mechanical & Manufacturing Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1 Demonstrate their knowledge and understanding of scientific principles and methodology necessary to underpin their education in mechanical and manufacturing and related engineering disciplines, to enable

appreciation of its scientific and engineering context and to support their understanding of future developments and technologies.

MSED2 Demonstrate their knowledge and understanding of mathematical principles necessary to underpin their education in mechanical and related engineering disciplines and to enable them to apply mathematical methods, tools and notations proficiently in the analytical and numerical solution of engineering problems.

MSED3 Exhibit an ability to apply and integrate knowledge and understanding of other engineering disciplines to support the study of mechanical and manufacturing and related engineering disciplines.

Engineering Analysis (EA)

EA1 Demonstrate their knowledge and understanding of engineering principles and the ability to apply them to analyse key engineering processes.

EA2 Demonstrate an ability to identify, classify and describe the performance of systems and components using analytical methods and modelling techniques.

EA3 Demonstrate an ability to apply quantitative methods and computer software relevant to mechanical and related engineering disciplines, to solve engineering problems.

EA4 Demonstrate an understanding of and an ability to apply a systems approach to engineering problems.

Design (D)

D1 Investigate and define a problem and identify constrains including environmental and sustainability limitations, health and safety and risk assessment issues.

D2 Demonstrate an understanding of customer and user needs and the importance of considerations such as aesthetics.

D3 Identify and manage cost drivers.

D4 Use creativity to establish innovative solutions.

D5 Ensure fitness for purpose for all aspects of the problem including production, operation, maintenance and disposal.

D6 Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1 Demonstrate their knowledge and understanding of commercial and economic context of engineering processes.

ES2 Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.

ES3 Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.

ES4 Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

ES5 Demonstrate their understanding of the need for a high level of professional and ethical conduct in engineering.

Engineering Practice (EP)

EP1 Demonstrate their knowledge of characteristics of particular equipment, processes or products.

EP2 Demonstrate engineering workshop and laboratory skills.
EP3 Demonstrate their understanding of contexts in which engineering knowledge can be applied (e.g. operations and management, technology, development, etc.).
EP4 Demonstrate their ability to use technical literature and other information sources.
EP5 Demonstrate an awareness of nature of intellectual property and contractual issues.
EP6 Demonstrate an understanding of appropriate codes of practice and industry standards.
EP7 Demonstrate an awareness of quality issues.
EP8 Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 2: HND/DipHE Mechanical & Manufacturing Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1b Demonstrate their knowledge and understanding of scientific necessary to underpin their education in mechanical and manufacturing and related engineering disciplines
MSED2b Demonstrate their knowledge and understanding of mathematical principles necessary to support application of key engineering principles.

Engineering Analysis (EA)

EA1b Demonstrate an ability to monitor, interpret and apply the results of analysis in order to bring about continuous improvement
EA2b Demonstrate an ability to apply quantitative methods in order to understand the performance of systems and components.
EA3b Demonstrate an ability to apply a systems approach to engineering problems.

Design (D)

D1b Demonstrate an ability to define a problem and identify constraints such as environmental and sustainability limitations, health, safety risk assessment issues.
D1b Demonstrate an awareness of customer and user needs and the importance of considerations such as aesthetics.
D3b Identify and manage cost drivers.
D4b Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1b Demonstrate their knowledge of management techniques which may be used to achieve engineering objectives within that context.
ES2b Demonstrate their understanding of the requirement for engineering activities to promote sustainable development.
ES3b Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1b Demonstrate an understanding of characteristics of particular equipment, processes or products.
EP2b Demonstrate engineering workshop and laboratory skills.
EP3b Demonstrate their ability to use technical literature and other information sources.
EP4b Demonstrate an ability to use appropriate codes of practice and industry standards.
EP5b Demonstrate an awareness of quality issues.
EP6b Demonstrate an ability to work with technical uncertainty.

Intermediate/Exit Award 1: HNC/CertHE Mechanical & Manufacturing Engineering

Underpinning Mathematics, Science and Associated Engineering Disciplines (MSED)

MSED1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of mechanical and manufacturing engineering and its underpinning science and mathematics.

Engineering Analysis (EA)

EA1c Demonstrate an ability to apply appropriate quantitative science and engineering tools to the analysis of engineering problems.

Design (D)

D1c Manage the design process and evaluate outcomes.

Economic, Social and Environmental Context (ES)

ES1c Demonstrate an awareness of the framework of relevant legal requirements governing engineering activities, including personnel, health, safety, and risk (including environmental risk) issues.

Engineering Practice (EP)

EP1c Demonstrate engineering workshop and laboratory skills.
EP2c Demonstrate their ability to use technical literature and other information sources.
EP3c Demonstrate an ability to use appropriate codes of practice and industry standards.

To support iMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 5
All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Full-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 3	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6000	Advanced Processes & Materials (Component Pass)	Core	20
ACMA6007	Plant & Asset Engineering	Compulsory	20
ACMA6010	Structural and Fluid Analysis	Compulsory	20
ACMA6012	Computational Methods (Component Pass)	Core	20
ACMA6013	Independent Project	Compulsory	40

Part-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 1	**Level 4**	**Semester 1**	**Sept to Feb**
ACMA4006	Engineering Mathematics	Compulsory	20
Year 1	**Level 4**	**Semester 1&2**	**Sept to July**
ACMA4007	Engineering Applications and Study Skills (Component Pass)	Core	20
Year 1	**Level 4**	**Semester 2**	**Feb to July**
ACDB4002	Electrical and Electronic Principles	Compulsory	20
Year 1	**Level 4**	**Semester 2&3**	**Feb to Aug**
ACHA4002	Engineering Science	Compulsory	20
Year 2	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4000	Materials and Introduction to Processing	Compulsory	20
ACMA4008	Engineering Design	Compulsory	20
Year 2	**Level 5**	**Semester 2**	**Feb to July**
ACMA5007	Management, Innovation and Sustainability (Component Pass)	Core	20
ACMA5009	Group Project (Component Pass)	Core	20
ACMA5002	Manufacturing Design and Technology	Compulsory	20
Year 2	**Level 5**	**Semester 3&1**	**July to Feb**
ACMA5010	Stress Analysis and Dynamics	Compulsory	20
Year 3	**Level 5**	**Semester 1&2**	**Sept to Feb**
ACMA5008	Thermofluids and Control	Compulsory	20
ACMB5005	Six Sigma Green Belt	Compulsory	20

Year 3	**Level 6**	**Semester 2&3**	**Feb to Aug**
ACMA6000	Advanced Processes & Materials (Component Pass)	Core	20
Year 3	**Level 6**	**Semester 3&1**	**July to Feb**
ACMA6010	Structural and Fluid Analysis	Compulsory	20
Year 4	**Level 6**	**Semester 1**	**Sept to Feb**
ACMA6012	Computational Methods (Component Pass)	Core	20
Year 4	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6013	Independent Project	Compulsory	40
Year 4	**Level 6**	**Semester 2**	**Feb to July**
ACMA6007	Plant & Asset Engineering	Compulsory	20

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

(7) (BSc/HND/C/DHE/CHE Engineering Management (PT)

The programme has the following general educational and specific aims:

To produce graduates who will:

- master specialist knowledge of engineering management theories, methods, practices and strategies;
- develop an in-depth understanding of business practices, organisational behaviour, management skills and business improvement techniques;
- be risk, cost and value-conscious, and aware of their ethical, social, cultural, environmental, health and safety, and wider professional responsibilities of the engineering management industry;
- be familiar with the nature of business and enterprise in the creation of economic and social value;
- appreciate the global dimensions of engineering management, commerce and communication;
- be able to formulate and operate within appropriate codes of conduct, when faced with an ethical issue;
- be professional in their outlook, be capable of team working, be effective communicators, and be able to exercise responsibility and sound management approaches.

Programme Learning Outcomes

Main Award: BSc Engineering Management

Knowledge and understanding (KU)

KU1 Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of engineering management and its underpinning science and mathematics.
KU2 Apply and integrate knowledge and understanding of engineering disciplines and appreciate the wider multidisciplinary management context.
KU3 Appreciate the social, environmental, ethical, economic and commercial considerations affecting the exercise of their management judgement.
KU4 Knowledge and understanding of mathematical and computational concepts, methods and techniques which are employed elsewhere in the programme or regarded as essential for professional management.
KU5 Appreciate the full range of management techniques employed in the industry.
KU6 Exhibit familiarity with the generic elements of current engineering applications and practices and have an awareness of the professional, legal and ethical responsibilities of the engineering manager.
KU7 Demonstrate a basic knowledge of business and management concepts, methods and techniques relevant to practicing engineering management.

Cognitive (thinking) skills (CS)

CS1 Apply appropriate management tools to enhance business operations.
CS2 Demonstrate a knowledge of management techniques which may be used to achieve specific engineering objectives.
CS3 Demonstrate creativity and innovation in the synthesis of solutions and in formulating designs.
CS4 Investigate and define an engineering problem and identify associated constraints such as environmental and sustainability limitations, and health and safety.
CS5 Manage effectively the design process, appreciate customer and user needs, evaluate outcomes, assess commercial risk and manage cost drivers.

Practical skills (PS)

PS1 Analyse and solve engineering management problems.
PS2 Employ basic theoretical models and management principles where appropriate.
PS3 Demonstrate an awareness of the mathematical and computational tools and techniques which provide essential support for problem solving and decision making in engineering.
PS4 Demonstrate an awareness to design a system, component or process.
PS5 Take a holistic approach to problem-solving to encompass technical, business and social factors and constraints.
PS6 Use laboratory and workshop equipment, along with appropriate instrumentation, in order to execute a series of experiments, both effectively and safely.
PS7 Demonstrate an ability to select appropriate computer software for design purposes and as a means of analysing and solving engineering problems.
PS8 Demonstrate an understanding of technical reports to a professional standard.

Key skills (KS)

KS1 Communicate effectively in writing, verbally and through graphical media.
KS2 Manage time and resources, prioritise and work to deadlines.
KS3 Use computers and information technology effectively.
KS4 Locate and assemble information using various sources
KS5 Demonstrate generic problem-solving skills acquired during the programme.
KS6 Work and learn independently.
KS7 Work effectively as a member of a group or team.
KS8 Prepare for engineering management employment

Intermediate/Exit Award 2: HND/DipHE Engineering Management

Knowledge and understanding (KU)

KU1b Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of engineering management and its underpinning science and mathematics.
KU2b Appreciate the full range of management techniques employed in the industry.
KU3b Demonstrate a basic knowledge of business and management concepts, methods and techniques relevant to practicing engineering management.

Cognitive (thinking) skills (CS)

CS1b Apply appropriate management tools to enhance business operations.
CS2b Demonstrate a knowledge of management techniques which may be used to achieve specific engineering objectives.
CS3b Demonstrate creativity and innovation in the synthesis of solutions and in formulating designs.

Practical skills (PS)

PS1b Analyse and solve engineering management problems.
PS2b Employ basic theoretical models and management principles where appropriate.
PS3b Demonstrate an awareness of the mathematical and computational tools and techniques which provide essential support for problem solving and decision making in engineering.
PS4b Use laboratory and workshop equipment, along with appropriate instrumentation, in order to execute a series of experiments, both effectively and safely.
PS5b Demonstrate an ability to select appropriate computer software for design purposes and as a means of analysing and solving engineering problems.

Key skills (KS)

KS1b Communicate effectively in writing, verbally and through graphical media.
KS2b Manage time and resources, prioritise and work to deadlines.
KS3b Work effectively as a member of a group or team.
KS4b Prepare for engineering management employment

Intermediate/Exit Award 1: HNC/CertHE Engineering Management

Knowledge and understanding (KU)

KU1c Demonstrate their knowledge and understanding of essential facts, concepts, theories and principles of engineering management and its underpinning science and mathematics.

Cognitive (thinking) skills (CS)

CS1c Apply appropriate management tools to enhance business operations.
CS2c Demonstrate a knowledge of management techniques which may be used to achieve specific engineering objectives.

Practical skills (PS)

PS1c Analyse and solve engineering management problems.
PS2c Employ basic theoretical models and management principles where appropriate.
PS3c Demonstrate an awareness of the mathematical and computational tools and techniques which provide essential support for problem solving and decision making in engineering.

Key skills (KS)

KS1c Communicate effectively in writing, verbally and through graphical media.
KS2c Manage time and resources, prioritise and work to deadlines.

To support iMechE accreditation, the programme is mapped to the Accreditation of Higher Education Programmes (AHEP) 3rd learning outcomes, please refer to the Appendix One for the full learning outcome statements.

Level 6

All Level 6 students must normally pursue 120 credits at Level 6. The credit rating of each module is specified in the module details.

PROGRAMME STRUCTURE

Part-time Students

Module Code	Title	Module type (component pass, core, compulsory or optional)	Credits
Year 1	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4006	Engineering Mathematics	Compulsory	20
Year 1	**Level 4**	**Semester 1&2**	**Sept to July**
ACMA4007	Engineering Applications and Study Skills (Component Pass)	Core	20

ACMA4004	Quality and Business Improvement	Compulsory	20
Year 1	**Level 4**	**Semester 2&3**	**Feb to Aug**
ACMA4002	Plant Operations and Performance	Compulsory	20
Year 2	**Level 4**	**Semester 1**	**Sept. to Feb**
ACMA4000	Materials and Introduction to Processing	Compulsory	20
ACMA4003	Project Design	Compulsory	20
Year 2	**Level 5**	**Semester 2**	**Feb to July**
ACMA5007	Management, Innovation and Sustainability	Component Pass	20
ACMA5002	Manufacturing Design and Technology	Compulsory	20
Year 2	**Level 5**	**Semester 3&1**	**July to Feb**
ACMA5000	Group Industrial Project (Component Pass)	Core	40
ACMA5012	Environmental Engineering and Sustainable Energy	Compulsory	20
Year 3	**Level 5/6**	**Semester 1&2**	**Sept to Feb**
ACMB5005	Six Sigma Green Belt	Compulsory	20
ACMA6008	Procurement and Negotiation	Compulsory	20
Year 3	**Level 6**	**Semester 2&3**	**Feb to Aug**
ACMA6000	Advanced Processes and Materials (Component Pass)	Core	20
Year 3	**Level 6**	**Semester 3&1**	**July to Feb**
ACMA6002	Manufacturing Systems and Simulation	Compulsory	20
Year 4	**Level 6**	**Semester 1&2**	**Sept to July**
ACMA6013	Independent Project	Compulsory	40
Year 4	**Level 6**	**Semester 2**	**Feb to July**
ACMA6007	Plant and Asset Engineering	Compulsory	20

Please note that delivery schedules/timetabling can be found by accessing your personalised timetable via the My Timetable tile on the Student Hwb.

Where appropriate, the University may allow students to study modules in addition to the 120 credits studied for the level of study e.g. Welsh medium or IT modules. Students would need to discuss this with their Programme Manager.

Note that on Programmes of Study offering a large number of options, timetable constraints will inevitably mean that not all combinations of options will be possible.

Module details are correct on 1 September 2024, and will not normally be changed during the year. In the unlikely event of changes having to be made to these details during the year, you will be notified in writing. Module descriptors are presented in the accompanying Module Directory document.

UNIVERSITY ENGAGEMENT POLICY

Attendance is an important indicator of your engagement with and success in your studies. All students are therefore required to attend all scheduled classes and tutorials and Institutes will record individual academic attendance. It is important that:

- you familiarise yourself with the engagement policy (see https://www.uwtsd.ac.uk/academic-office/academic-quality-handbook/);
- you are fully aware of engage proactively with all university procedures in support of their learning, including probation, action plans, etc.

This is particularly important for **international students with a Student Visa.** Failure to adhere to the requirements and conditions of the Engagement Policy will lead to withdrawal from your programme and the University will also inform the UKVI to withdraw your student visa sponsorship.

Appeal against withdrawal due to lack of engagement
Information on how to appeal against withdrawal due to lack of engagement is provided within the Engagement Policy.

Withdrawal
Students who have decided they do not wish to continue their programme of study, must complete a formal University withdrawal form which is available on MyTSD. (Please access the form under the 'Data Changes and Forms' tab on the 'Forms' menu). Withdrawal from a programme may have implications for student finance and this should be understood by the student prior to submitting the form.

Engineering Attendance Policy
Please note that, in addition to the University Engagement Policy, the Academic Discipline of Engineering has its own attendance policy. Details are provided at the end of this handbook.

CODES OF CONDUCT

The University is committed to providing all students with a safe and inclusive learning environment where all students have the potential to succeed to the best of their ability.

The University expects all students to abide by the Student Code of Conduct (see https://www.uwtsd.ac.uk/about/governance-and-management/student-charter).

The University also has Support for Study and Fitness to Practise Policies (see https://www.uwtsd.ac.uk/academic-quality-handbook).

In addition, many programmes have a professional code of conduct that you are expected to adhere to. Your Programme Manager will provide you with appropriate details.

ABOUT ACADEMIC INTEGRITY

Academic integrity is being honest in the work that you do in your studies. Honesty takes many forms; for example:

- writing your own answers in unseen exams without consulting with others or using online or printed materials;
- formally acknowledging the work and ideas of others, whether those of a friend, a lecturer, an article or book that you read, or a page on the internet that you accessed;
- ensuring that you get ethical approval for your research where necessary;
- and many other actions that you take during your studies.

Breaches of Academic Integrity are called Academic Misconduct.

The University defines academic misconduct as '– Any action by a student which gives or has the potential to give an unfair advantage in an examination or assessment, or might assist someone else to gain an unfair advantage, or any activity likely to undermine the integrity essential to scholarship and research'. Committing academic misconduct in assessment is one of the most serious offences in academic life, and its consequences can be severe. It undermines the integrity of scholarship, research, and of the examination and assessment process.

It is very important to understand that it is no defence to claim that academic misconduct has been committed unintentionally, accidentally, due to extenuating circumstances or a long-term impairment (irrespective of whether or not these circumstances or long-term impairment have been acknowledged by the University).

You can find out the full regulatory framework, including penalties, on Academic Misconduct in the UWTSD Academic Misconduct Policy, which you can find here: https://www.uwtsd.ac.uk/academic-quality-handbook.

There are several types of Academic Misconduct. Here are some examples and how to avoid them:

Plagiarism is presenting someone else's work or ideas as one's own. Plagiarism can include phrases, sentences, ideas, viewpoints, data, tables, pictures or indeed anything that someone else has created and is presented as your own work.

How to avoid plagiarism:

1. Never copy/paste from any source, unless you have clearly identified that you are doing this.
2. Always provide references to the sources of information you have used.

Referencing is essentially acknowledging the sources of information and ideas that you have used.

The University recognises four referencing styles: APA, Harvard, IEEE and MHRA and provides a handbook for each of these styles. For your programme of study, you should be using Harvard.

You can find all of the Referencing Handbooks here:
https://intranet.uwtsd.ac.uk/departments/library-and-learning-resources/academic-and-infoskills/referencing-handbooks

If you are uncertain which handbook is for your subject, do ask your Programme Manager or Academic Tutor.

Self-plagiarism is when you are reusing material that you have created yourself.

How to avoid self-plagiarism:

1. Never take a paragraph (or sentence or graph or image, etc.) from a previous piece of work and submit it as part of a new piece of work.

Remember Self-plagiarism is as bad as plagiarism and has the same penalties.

False authorship is a broad category of misconduct, which covers from buying an essay off an essay-mill to using paraphrasing software.

How to avoid false authorship:

1. Never ask someone else to create your work, whether that is a friend, a relative or someone you pay.
2. Never submit work that you have bought or solicited.
3. Do not use material repositories, where students store essays and notes, without full referencing.
4. Do not use paraphrasing software, unless you have been allowed to do so by the module tutor.
5. Use Generative Artificial Intelligence tools only as allowed in the assessment specification for any given assessment.

Fundamentally, the work that you submit for any part of your degree **must be your own**.

Collusion is when two or more students submit work that is very similar and there is evidence to suggest that they worked together, or one used the other's work. Collusion is only relevant when the assignment is to be completed by each student individually. Group work that is submitted on a group basis is not subject to allegations of collusion.

How to avoid collusion:

1. Keep your materials, such as notes from reading, essay drafts, etc. private.
2. Do not share them with others, whether in the same class or in another class.
3. Do not publish them online.
4. Do not leave them in shared computers without password protection.

There is no problem in discussing your work, your discoveries and knowledge with other students. On the contrary, you will often be asked to work with others informally whether in class or outside. Learning from others and teaching others is an essential avenue to deeper learning.

Cheating in examinations (or other formal assessment) includes the possession of unauthorised material or technology during an examination, and attempting to access unseen assessment materials in an advance of an examination.

When enrolling as a student at the University of Wales Trinity Saint David you have consented to your work being scrutinised both electronically and for academic misconduct. Normally, your work will be submitted electronically via Moodle.

For submissions outside of the Moodle platform, it is equally important that you reference your sources accurately. In some cases, you will be expected to submit both hard and electronic copies, which can be checked against the database of the UK Higher Education Plagiarism Detection Service. For handwritten, portfolio and process workbook submissions check with your module tutor if you are in any doubt about whether you have infringed the regulations. They are here to assist you; ensure that you take advantage of their expertise.

Generative Artificial Intelligence Guidance

As we embrace the future, it is important to understand the role of Generative Artificial Intelligence (Generative AI) in higher education. Generative AI is rapidly transforming industries, workplaces, and society at large. To prepare you for these changes, our University is committed to helping students and staff engage with Generative AI in effective, ethical, and appropriate ways.

Generative AI offers numerous benefits, from enhancing learning experiences to streamlining tasks. However, the fast pace of AI development means we need to stay informed and adaptable. That's why our University fosters open and honest discussions about AI among all stakeholders. We encourage everyone to learn about, adopt, and adapt to AI innovations, and even contribute to developing new AI solutions.

Our Commitments:

1. **Enhancement and Support**: We will explore and support the development and adoption of Generative AI tools to improve efficiency, access, and support for both students and staff.
2. **Learning Opportunities**: We offer educational resources to help you become AI literate, understand ethical considerations, and stay informed about AI's potential future developments and uses.
3. **Agility and Adaptation**: Our policies and procedures will evolve in response to the rapid development of AI tools, ensuring academic integrity and the ethical use of AI.
4. **Curriculum and Assessment**: We will consider and support changes to our curriculum and assessment methods to incorporate AI technology.
5. **Equity of Access**: We aim to provide equitable access to AI tools for all students and staff.

Expectations for Students:

1. **Engage in Learning Opportunities**: Participate in the educational opportunities we provide to enhance your AI literacy and understand the ethical implications and future uses of AI.
2. **Maintain Academic Integrity**: Ensure your work is original and ethically produced. Claiming AI-generated content as your own, unless specifically allowed, is considered academic misconduct.

Use of Generative AI in Assessments:

The level of use of Generative AI in assessments will be outlined in the assessment briefs for each individual module. It's important to read these briefs carefully to understand how and when you can use AI tools. This will help you adhere to the specific guidelines and ensure that your use of AI is appropriate and aligns with academic integrity standards.

By understanding and responsibly using Generative AI, you can significantly enhance your educational experience and prepare for a future where AI plays an integral role in various aspects of life and work.

LIBRARY AND LEARNING RESOURCES

The Library and Learning Resources (LLR) aims to support and enhance the learning, teaching and research activities of staff and students across the University. There are

libraries at Swansea, Carmarthen, Lampeter, London and Birmingham campuses, providing access to a variety of welcoming and flexible learning spaces. We provide on and off campus access to thousands of online journals and e-books, and subscribe to online databases relevant to each subject area; in addition to specialist digital and information literacy support, research support and special collections and archives.

The LLR is a full member of WHELF (Wales Higher Education Libraries Forum) and is also a member of the SCONUL Access (Society of College, National and University Libraries) scheme, which is a co-operative venture between most of the higher education libraries of the UK and Ireland. It enables staff, research students, full time postgraduates and part-time, distance learning and placement students to borrow material from other libraries. Librarians are welcomed to Staff / Student Committees and other relevant Institute meetings where invited, including Institute Boards.

Online Library
The LLR offers a wide range of printed and electronic resources for the programmes offered by the University. The LLR houses an extensive collection of online e-journals, e-books, and audio-visual material, with the electronic resources being available 24/7. Users may access a variety of e-resources, containing scholarly journals, newspapers, company reports and reference material.

Skills Development
Academic Liaison Librarians are the main point of contact for staff and students, and contribute to teaching and learning by helping students to develop the skills required to find, use and evaluate information sources within the subject areas taught by the Institute. All new students receive a basic skills session and a referencing session during the first term, followed by more in-depth sessions throughout their studies.

Academic Liaison Librarians also provide a wider InfoSkills programme focusing on transferable employability skills and academic skills. This includes advanced search skills, ethical use of information, referencing and managing your online identity. Support can be provided face-to-face or remotely; by email, over the phone or via Teams. Students can also book a one-to-one session directly with their librarian or digital skills advisor from the library website. Referencing guidance is also available from the LLR and can be accessed from the library intranet pages:
https://intranet.uwtsd.ac.uk/departments/library-and-learning-resources/academic-and-infoskills

Digital Skills
Our Digital Services team are always on hand to assist students in identifying their own skills gaps and locate appropriate structured learning resources to develop digital confidence. You can access our full range of digital skills resources at any time. Many of our courses are from LinkedIn Learning, and as a member of staff or student, you have free access. Students can gain a range of digital badges to demonstrate their knowledge and digital capabilities.

Other Specialist Support
The LLR offers access to a wide range of information sources in varied and accessible formats, ensuring equality of provision and access to learning materials. A designated member of staff can help and advise students with disabilities or specific learning requirements. Specialist support on copyright, referencing, and research activities is also provided. This includes advice on Research Data Management, using referencing software, Open Access requirements, setting up your ORCID ID and measuring the impact of research, advanced literature searching and accessing other academic and research libraries.

The Need More? Service
The LLR provides a Need More? service which takes an innovative approach to resource delivery, providing a one stop shop for all learning resource needs. If a book, journal or other resource is needed and is not in library stock, it may be purchased, borrowed from another library or rented as an e-book. The service also provides a referral mechanism so that students are introduced to their Academic Liaison Librarian to ensure they are getting the most out of existing resources or where they are working on a specialist project.

Learning Spaces
Students are welcome to use any UWTSD libraries, regardless of the subject of their study. As well as collections, the libraries provide a variety of flexible spaces, reflecting the way students work e.g. group study spaces and quiet areas, as well as IT facilities, wireless internet, photocopying and printing facilities, and excellent customer service.

Further Information
For recent service developments and updates please visit the LLR's intranet pages: https://intranet.uwtsd.ac.uk/departments/library-and-learning-resources. This also provides staff and library contact information for all the libraries of the University. The LLR can also be followed on Facebook, Twitter and Instagram (@UWTSDLib) and contacted by email: library@uwtsd.ac.uk.

DIGITAL CREATIVITY AND LEARNING (DCL)

Digital learning

Digital learning encompasses a wide variety of learning models and approaches, digital technologies, and services, therefore, playing a vital role in how content is delivered and how students learn. The current Covid situation has been a catalyst to elevating the significance of high-quality digital teaching and learning resources, and also the importance of ensuring parity for both face-to-face and remote learning experiences.

A well-developed package of digital learning materials can:
- Improve learning experience
- Widen participation and collaboration
- Improve accessibility
- Develop key employability skills

IT SERVICE DELIVERY

IT support is available through our IT Service Desk who are available to help and assist you over the phone, in person or via our online portal and live chat service.

Telephone support is available 24 hours a day, 365 days a year so no matter when you may need assistance, we're here to help by calling us on 0300 500 5055.

Wi-Fi
All students can access our eduroam wireless network on their laptop, mobile phone or tablet.

Eduroam is the wireless network available to use across all campuses. Eduroam also provides you with Wi-Fi access at any other eduroam enabled institution across the world.

Open Access Computers & Booking Facilities
Students can access general IT facilities through our open access computer areas across our University campuses.

What do computer rooms offer?

- PCs connected to the University's data network
- Usually a multifunctional device (MFD) offering colour and black and white printing, copying and scanning or a colour laser printer
- May also contain wireless access and more specialised equipment such as plotters, Sports Analysis Equipment and audio visual equipment
- Long opening hours with many of them open 24/7
- Ability to pre-book a PC to use remotely to make sure you have access at the time you need to study.

Student IT Exclusives
We provide students with access to free or heavily discounted software and computer solutions through our Student IT Exclusives offers.

Free Microsoft Office 365
As a UWTSD student, you can download Microsoft Office 365 Pro Plus including Word, Excel and PowerPoint to use free for the duration of your studies at UWTSD.

Adobe Creative Cloud
Students studying on eligible courses are able to access Adobe Creative Cloud suite for free which can be installed on your personal device during your studies.

You can also purchase a copy of Adobe Creative Cloud directly from Adobe's Website and save over 65% discount paying on a monthly basis.

Free Windows 11
We are able to provide all students with a license to use Microsoft's latest operating system for free from our On the Hub store.

Software Discounts
We've created an online store where all students can download a huge range of free or heavily discounted software for use at home.

The EDU store
Discounts are available for students on a range of products including the Microsoft Surface, Apple devices, Phones & Smart Watches. Free 4 year warranty on all Apple products & free next day delivery on all orders.

Select Easy Upgrade
Get the Apple Product you want right now. Spread the cost with low monthly payments, upgrade to the latest device at the end of the plan or pay off the balance with the Easy Upgrade Store.

Apple's Education store
You can get great Apple education pricing by visiting the Apple Education Store.

Free Autodesk
Download a range of Autodesk software including Fusion 360, Inventor Professional, Revit, AutoCAD, 3ds Max & Maya.

Print, Copy & Scan

Students have access to print, copy and scanning services which are available across all University Learning Resource Centres as well as specific computer rooms and open access areas.

UWTSD use Multi-Functional Devices (MFDs) which all have print, copy and scan functions available in full colour or black and white.

STUDENT SERVICES

A professional support service providing high quality information, advice, guidance, practical and emotional support to enable all students to reach their full potential. Support available includes the Careers Service, Financial Support, Learning Support, Well-being Support, Counselling Service and support for students from a care background. For further details see https://www.uwtsd.ac.uk/experience-facilities/student-support-wellbeing.

STUDY SKILLS

All students have access to study skills support to assist them in their studies. Details of provision are available from the Student Services offices on each campus and at https://www.uwtsd.ac.uk/experience-facilities/student-support-wellbeing/learning-support.

Topics covered include:
Developing effective study strategies
Planning and writing assignments
Preparing presentations
Planning for seminars
Preparing for exams

Drop-in study skills sessions and 1:1 appointments are available online (and in person where possible) – no appointment necessary. Please see the Student Services study skills webpages for further details: https://www.uwtsd.ac.uk/experience-facilities/student-support-wellbeing/learning-support.

COMPLAINTS

You have a right to make a complaint about any specific concern about the provision of your Programme of Study or a related academic service. Full details of the complaints process can be found in the *Student Complaint Policy* associated with Chapter 12 of the Academic Quality Handbook and in supporting documentation published on the Academic Office section on the University's website: https://www.uwtsd.ac.uk/academic-quality-handbook.

ENGINEERING ACADEMIC DISCIPLINE ATTENDANCE POLICY

Through the years of running these engineering programmes, data has shown the correlation between students who have a high level of attendance and those who succeed on the course. Generally, those who attend well also often excel at their assessments too. With this in mind the Engineering Academic Discipline would not only encourage students to attend the obligatory timetabled lectures but also the extra-curricular content that is offered as well. By taking full advantage of the opportunities available while studying, such as extracurricular activities, internships, or workshops, students will gain a range of skills that industry finds most desirable. These skills will not only make students successful within the course but also highly employable too after graduating.

Attendance Management for Engagement and Attainment of Full-Time Students

The Engineering Academic Discipline will monitor the attendance of all students to support engagement and attainment. The goal for students studying on a full-time provision is to attend all scheduled sessions to maximise success in their courses. The pastoral team will actively monitor student performance and identify those at risk of failing based on their attendance, engagement and assessment results.

The Engineering Academic Discipline has implemented a Pastoral System for full-time students to manage their attendance and attainment effectively. As part of the Pastoral System, each student will be assigned a specific Head of Year who will be their contact for any issues relating to attendance, engagement and attainment.

Foundation Level – Head of Year will be Richard Sutton
Level 4 – Head of Year will be Abi Summerfield
Level 5 – Head of Year will be Andrew Harrison
Level 6 – Head of Year will be;
Mark Sanford for Automotive Engineering
Kelvin Lake for Energy & Environmental Engineering
Jordan Jenkins for Mechanical and Mechanical & Manufacturing Engineering
Owen Williams for Motorcycle Engineering
Tim Tudor for Motorsport Engineering
Level 7 – Head of Year will be Andrew Noble

For students identified as being at risk of failing, the pastoral team will give guidance on the additional support sessions that are available. These sessions are designed to provide the necessary academic assistance to help students succeed in their studies. Attendance at these sessions will be expected and monitored for those who are identified as being at a risk of failing. This will allow the pastoral team to ensure that students are taking full advantage of the resources available to them.

Undergraduate (UG) and Postgraduate (taught) (PGT) students should attend all their scheduled academic sessions (e.g. lectures, workshops, supervisory meetings). Students will register their attendance at academic sessions via a register system. This data will be recorded in a University devised electronic attendance monitoring system by the module tutors.
The Heads of Year will be checking individual student attendance at appropriate points to identify any issues early on and will work with the student to support continued engagement with the programme.

Face-to-Face attendance will be the only accepted form of attendance, unless previously agreed with a student's Head of Year.

Where there are circumstances in which a student is unable to attend for legitimate reasons, the Engineering Academic Discipline would ask the students to contact their Head of Year so that the team is fully appraised of the situation. International Students with a CAS will need to refer to the University Engagement Policy which can be found here: Engagement Policy (uwtsd.ac.uk), as evidence must be provided for authorised absence.

Engineering Academic Discipline Response to Poor Attendance of Full-Time Students

If a student is identified as at risk due to poor attendance, engagement or low assessment performance, the Engineering Academic Discipline will initiate a process of intervention. The process will be a mixture of informal and formal responses and is shown in the table below;

Letter/email label	Letter or email	UG	PGT Part I	Response Required
Percentage attendance related:				
EA1 Attendance & Attainment Reminder (UG/PGT Part I)	E & L	✓	✓	
EA2 Notification of Action Required (Second Warning) (UG/PGT Part I)	E & L	✓	✓	✓
EA3 Notification of Withdrawal (UG/PGT Part I)	E & L	✓	✓	✓

Attendance Management for Engagement and Attainment for Degree Apprenticeship Students

The Engineering Academic Discipline will monitor the attendance of all students for engagement and attainment purposes. The Engineering Academic Discipline has identified that to be fully successful on the Degree Apprenticeship courses, students should aim for 100% attendance. If a student is identified as being at a risk of failure due to low attendance, then the Apprenticeship Liaison Officer will be notified and contact may be made with the sponsoring company via the Degree Apprenticeship Unit.

The Degree Apprenticeship Unit has implemented a Support System for Degree Apprenticeship students, that will enable a student's attendance and attainment to be managed effectively. As part of the support system, each student will be assigned a specific Apprenticeship Liaison Officer (ALO), who will be their contact for any issues relating to attendance, engagement and attainment.

The ALOs will be checking individual student attendance on a regular basis to ensure that attendance issues are noted as soon as possible and will work with the student to develop a solution to ensure the student remains engaged with the programme Degree Apprenticeship students should attend all their scheduled academic sessions (e.g. lectures, workshops, supervisory meetings). Students will register their attendance at academic sessions via a register system. This data will be recorded in a University devised electronic attendance monitoring system by the module tutors.

Where there are circumstances in which a student is unable to attend for good reason, the Engineering Academic Discipline would ask the students to contact their ALO so that the team can support the student's continued engagement with the programme.

University Support Services

If students are struggling with attendance or attainment, then as well as the Head of Year / ALO contact, the University also has a number of other support systems in place that students can contact

Student Hwb can be contacted for access to any of the support services available through Student Services on hwb@uwtsd.ac.uk

Wellbeing support information available at Wellbeing Support | University of Wales Trinity Saint David (uwtsd.ac.uk)

Student Assistance Programme can be accessed 24/7 by any UWTSD student, including mental health support, on 0800 028 3766. The professional staff are on hand to offer you support at any time.

The TogetherAll platform has a wealth of wellbeing resources available to help students manage their mental health. The platform also provides opportunity for students to connect with other students across the UK to discuss common challenges, share approaches and build support networks. Log into Together all here: Togetherall

The Feeling Good App allows student to log and monitor their wellbeing and provide daily tools to promote positive mental health. Access the Feeling Good app here: Feeling Good App for UWTSD – Feeling Good

Study Skills Support Sessions – studyskillsdistance@uwtsd.ac.uk

Money Support available at Money Support | University of Wales Trinity Saint David (uwtsd.ac.uk)