



**Programme Handbook**

**Programme Name:** FdSc Mechatronics

**Course Leader:** Ewan McGregor

**Campus:** Bridgwater and Taunton College, Bridgwater Centre

**Academic Year:** 2018/2019

## **Aim of the Handbook**

The handbook is designed to provide a reference point for students to enable easy access to information relevant to the programme. The information in the handbook may also be provided in a number of other electronic or paper sources and this document provides links to the definitive data sources wherever possible.

Please note that the electronic version of the handbook will be kept up to date and you will be notified of any significant changes. If you have taken a hard copy of any information please remember to refer back to the electronic version to ensure that you are working with the most up to date information.

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## 1. Key contact information

Your course team contact details:

Role	Name	Contact information
Assistant Principal	Jason Kilduff	kilduffj@bridgwater.ac.uk
Head of Department	Chris Hunt	huntc@bridgwater.ac.uk
Curriculum Manager	Chris Ridgwell	ridgwellc@bridgwater.ac.uk
Course Leader	Ewan McGregor	mgregorm@bridgwater.ac.uk

Your teaching team contact details:

Name	Contact information
Nick Leheup	leheupn@bridgwater.ac.uk
Ali Azimfar	azimifara@bridgwater.ac.uk
Abdulkareem Karasuwa	karasuwa@bridgwater.ac.uk

Other key contacts:

Role	Name	Contact information
Principal	Mike Robbins	If you have any queries, please email: <a href="mailto:HE@bridgwater.ac.uk">HE@bridgwater.ac.uk</a>
Vice Principal	Andy Berry	
Director of Student Services	Mark Nettle	
HE Quality Team		
To help with ensuring that you are able to access the materials that you need in order to complete your course and can offer other support with HEADstart	The LRC Team	<a href="mailto:lrcenquiries@brdgwater.ac.uk">lrcenquiries@brdgwater.ac.uk</a>
To solve IT issues	Technology Helpdesk	<a href="mailto:technologyhelpdesk@bridgwater.ac.uk">technologyhelpdesk@bridgwater.ac.uk</a>
Printing and copying	Reprographics	Located in the Bridgwater LRC through the hatch to the right of the library
Support with specific difficulties you may be facing	Counselling and Mental Health Team	<a href="mailto:counsellingandmentalhealthteam@bridgwater.ac.uk">counsellingandmentalhealthteam@bridgwater.ac.uk</a>
To help with accommodation, travel and any other student based issues which you may encounter during your time her	Student Liaison Team	<a href="mailto:studentsupport@bridgwater.ac.uk">studentsupport@bridgwater.ac.uk</a>

Loan and payment queries	Finance Team	<a href="mailto:finance@bridgwater.ac.uk">finance@bridgwater.ac.uk</a>
To provide extra support with learning in lessons and exams	Learning Support Team	<a href="mailto:learning.support@bridgwater.ac.uk">learning.support@bridgwater.ac.uk</a>
For future course and career options and information	Information and Guidance Team	<a href="mailto:info@bridgwater.ac.uk">info@bridgwater.ac.uk</a>
Support for international students	International Office	<a href="mailto:int@bridgwater.ac.uk">int@bridgwater.ac.uk</a>

Key staff at UWE can be found by following this [link](#).

## 2. Programme specific information

The Mechanical Engineering Foundation Degree will provide you with a broad understanding of mechanical analysis and design, combined with awareness of engineering practice, information technology and project management . Upon successful completion of the programme you will be equipped to solve multi-disciplinary projects with a greater emphasis upon critical appraisal of existing ideas and practice original thought and creative ability.

This programme will help develop a wide range of expertise relevant to industry in general and in particular industries related to mechanical design, operations and manufacture. The programme covers a broad range of disciplines such as Mechanical Analysis, Mathematics, Stress & Dynamics, and Manufacture.

Authentic and innovative work-based learning is an integral part of the Foundation Degree. Work Based Learning enables you to take on appropriate role(s) within the workplace and apply the skills and knowledge acquired whilst studying on the programme.

The aims are that upon successful completion of the programme you shall be able to:

1. Apply established and novel Mechanical Analysis concepts to the solution of engineering problems involving Design, Operations and Manufacture
2. Model mechanical engineering systems so as to be able to specify and assess the technical design
3. Understand the design, material and manufacturing
4. Identify the links between design, manufacturing and production management
5. Modification, maintenance and control of manufacturing facilities
6. Operate effectively either as individuals or as members of a multi-disciplinary team
7. Communicate effectively both orally and in written form

8. Pursue independent study, undertake enquiry into novel and unfamiliar concepts and implement change in an Engineering environment

Learning Outcomes of the Programme	
Learning Outcomes	Teaching, Learning and Assessment Strategies
<b>A Knowledge and Understanding</b>	
<p><b>A Knowledge and understanding of</b></p> <ol style="list-style-type: none"> <li>1. The principles governing the behavior of mechanical components and systems.</li> <li>2. Mathematical methods appropriate to mechanical engineering and related fields.</li> <li>3. The properties, characteristics and selection of materials used in mechanical components and systems.</li> <li>4. Core engineering science and technologies with greater depth in areas pertinent to mechanical systems.</li> <li>5. The principles of information technology and data communications from a user's perspective.</li> <li>6. Management principles</li> </ol> <p>The above skills meet the SEEC Level Descriptors for level 1 and 2 learning outcomes.</p>	<p><b>Teaching/learning methods and strategies:</b></p> <p>Acquisition of 1 to 6 is through a combination of formal lectures, tutorials, laboratory work, guided project work, work-based learning, group assignments, independent projects and case studies.</p> <p>The programme of study is designed to introduce basic knowledge and understanding of the technologies underpinning engineering, design and product development through a range of level 1 modules. This basic knowledge is developed through a range of taught and project modules at level 2.</p> <p>Outcome 6 is achieved through Project Management .</p> <p>Throughout the student is encouraged to undertake independent reading both to supplement and consolidate what is being taught/learnt and to broaden their individual knowledge and understanding of the subject.</p> <p><b>Assessment:</b></p> <p>Testing of the knowledge base is through assessed course work, through tasks undertaken under examination conditions, through oral presentations, work-based learning reports and assessed practical work done in various laboratories.</p>
<b>B Intellectual Skills</b>	
<b>Intellectual Skills</b>	<b>Teaching/learning methods and strategies:</b>

## Learning Outcomes of the Programme

Students will develop:

1. The ability to produce novel solutions to problems through the application of engineering knowledge and understanding
2. The skills of selecting and applying scientific principles in the modelling and analysis of mechanical engineering problems
3. The ability to use a broad spectrum of technologies/techniques to solve design problems.
4. The capability to use scientific/technological principles in the development of engineering solutions to practical problems in the domain of mechanical engineering.
5. The ability to understand issues relating to the management processes associated with their design and manufacture.
6. The ability to use independent thinking and analysis in the development of engineering solutions.
7. The capability to review available literature on topics related to mechanical engineering
8. The capability to evaluate evidence to support conclusions, reviewing its reliability, validity and significance. Also to be able to investigate contradictory information and identify reasons for contradictions.

The above skills satisfy the SEEC descriptors for levels 1 and 2.

At all levels students are required to bring together knowledge and skills acquired in several modules including the workplace and hence determine new ways of working. As the student progresses, the need to synthesize ever greater volumes of information and approaches into a coherent approach is developed and consequently so is their critical thinking.

At level 1 analysis, evaluation and problem solving are developed on small-scale problems in various programming activities in a number of modules. Here the focus is on understanding the problem and then solving it free from the environmental implications of real world problems and without the need to examine alternatives and to balance conflicting goals.

At level 2 there is a move away from small-scale problems to the design of larger scale systems. With this comes the need to evaluate alternative methods and designs and to balance conflicting objectives.

The development of engineering solutions requires demonstration of all of the intellectual skills. At level 1 the focus is on the skills of Analysis, Evaluation and Problem Solving. At level 2 this branches out to include all the remaining skills.

Independent reading is used to enable students to both broaden and deepen their subject knowledge.

### Assessment:

Mechanical engineering work requires demonstration of a very wide range of skills. These skills are assessed through a combination of coursework on cross-disciplinary integrating assignments, integrating projects; and examinations.

### C Subject, Professional and Practical Skills

C Subject, Professional and Practical Skills

Teaching/learning methods and strategies:

**Learning Outcomes of the Programme**

<p>Students will be able to:</p> <ol style="list-style-type: none"> <li>1. Use appropriate methods for modeling and analysing problems.</li> <li>2. Use relevant design, test and measurement equipment.</li> <li>3. Use experimental methods in the laboratory relating to engineering manufacture and test.</li> <li>4. Demonstrate practical testing of engineering ideas through laboratory work or simulation with technical analysis and critical evaluation of results.</li> <li>5. Act autonomously, with minimal supervision or direction, within agreed guidelines.</li> <li>6. Execute and manage multi-disciplinary projects.</li> </ol>	<p>Throughout the programme, the skills listed are developed through a combination of theoretical discussion, practical laboratory based work, classroom based tutorial exercises, work-based learning and directed self-study.</p> <p>Skills 1-5 are introduced at level 1 and then drawn into sharper focus at level 2. The general teaching/learning approach is therefore to impart these practical/professional skills by a process of moving from an overview of what is required to a specific application of an individual skill at a higher level.</p> <p>Skill 6 is developed from level 1 upwards e.g. for individual understanding of lecture material and software, and operating laboratory equipment.</p>
<b>Assessment:</b>	
<p>The possession of these skills is demonstrated by the development of practical laboratory work, coursework, presentations, workplace and examinations. The practical nature of the skills to be acquired means that some are specifically addressed by particular modules, whilst the more generic skills are assessed across a range of modules.</p>	

**D Transferable Skills and other attributes**

<p>D Transferable Skills and other attributes</p> <ol style="list-style-type: none"> <li>1. Communication skills: To communicate orally or in writing, including, for instance, the results of technical investigations, to peers and/or to “problem owners”.</li> </ol>	<p>Teaching/learning methods and strategies:</p> <ul style="list-style-type: none"> <li>• Skill one is developed through a variety of methods and strategies including the following:</li> <li>• Students maintain laboratory log books</li> </ul>
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## Learning Outcomes of the Programme

2. Self-management skills: To manage one's own time; to take responsibility for the quality of the work; to meet deadlines; to work with others having gained insights into the problems of team-based systems development.

3. IT Skills in Context: To use software in the context of problem-solving investigations, and to interpret findings.

4. Problem formulation: To express problems in appropriate notations.

5. Progression to independent learning: To gain experience of, and to develop skills in, learning independently of structured class work. For example, to develop the ability to use on-line facilities to further self-study.

6. Comprehension of professional literature: To read and to use literature sources appropriate to the discipline to support learning activities.

7. Group Working: To be able to work as a member of a team; to be aware of the benefits and problems which teamwork can bring.

8. Information Management: To be able to select and manage information, competently undertaking reasonably straight-forward research tasks with minimum guidance.

9. Self-evaluation: To be confident in application of own criteria of judgement and can challenge received opinion and reflect on action. Can seek and make use of feedback.

- Students participate in workshops and group work presentation sessions.
- Students participate in discussion tutorials
- Students present research topic findings in tutorials
- Students participate in individual tutorials
- Work-based learning/reports
- Skill two is developed through a variety of methods and strategies including the following:
- Students conduct self-managed practical work
- Students participate in practically-oriented tutorial
- Students work through practical work-sheets in teams
- Students practice design and programming
- Work-based learning/reports
- Skill three is developed widely throughout the programme.
- Skill four is developed through a variety of methods and strategies including the following:
- Students develop problem solving programs
- Students practice design and programming
- Students express problems in mathematical notation.
- Skill five is developed through a variety of methods and strategies including the following:
- Students are encouraged to practice programming to extend their skills
- Students develop problem-solving programs
- Students are encouraged to research relevant topics
- Students are encouraged to use online facilities to discover information
- Work-based learning/reports
- Skill six is developed through a variety of methods and strategies including the following:
- Students are encouraged to access a range of material including both printed and online sources
- Students are expected to include a literature review in the Individual Project
- Skill seven is developed through a variety of methods and strategies including student

**Learning Outcomes of the Programme**

	<p>involvement in group projects in a number of modules across the programme, including the workplace.</p> <ul style="list-style-type: none"> <li>• Skill eight is widely developed and tested through modules of different mechanical engineering topics</li> <li>• Skill 9 is developed across the industry topics through a variety of assignments, and presentations including the work-based element. Feedback to students from staff is frequent and specific to the individual.</li> </ul>
	<p>Assessment:</p> <p>The skills are demonstrated in a variety of contexts including: examination; poster presentation; individual and group projects; practical assignments; portfolio of exercises. In addition skill two is assessed by both peers and tutors.</p> <p>In particular, a variety of transferable skills are assessed in the Project Management module.</p>

<b>Year 1</b>	<b><u>Compulsory Modules</u></b>	<b><u>Interim Awards</u></b>
	<b>UFMFH3-30-1 – Stress and Dynamics</b>	None.
	<b>UFMFN3-30-1 - Design, Materials and Manufacturing (WBL)</b>	
	<b>UFMFJ9-30-1 - Engineering Mathematics</b>	
	<b>UFMFF3-15-1 - Energy and Thermodynamics</b>	
<b>UFMFG3-15-1 - Fluid Dynamics</b>		

<b>Year 2</b>	<b><u>Compulsory Modules</u></b>	<b><u>Interim Awards</u></b>
	<b>UFMF88-30-2</b> - Design and Electromechanical Systems	Certificate of Higher Education Mechanical Engineering Credit requirements 120 credits
	<b>UFMFHA-15-2</b> - Project Management	Other requirements: a Cert HE has to be requested by the student in writing.
	<b>UFMFW8-30-2</b> - Heat Transfer, Power and the Environment	
	<b>UFMFL8-15-2</b> – Dynamics	
	<b>UFMFQA-15-2</b> - Stress Analysis	
	<b>UFMFK9-15-2</b> – Engineering Mathematics 2	

### 3. Programme Specification

The module specification documents can be found by following this blackboard link.

### 4. Important dates

UWE specific academic year dates are published on the University [website](#).

Below is a clear table showing the term dates for Bridgwater and Taunton College:

<b>Autumn Term 2018</b>	
<b>Induction and Enrolment : w/c 17 September 2018</b>	<b>Fresher's Week: w/c 17 September 2018</b>
<b>Start of term: Monday 24 September 2018</b>	<b>End of term: Thursday 20 December 2018</b>
<b>Reading week: Monday 29 October 2018 – Friday 2 November 2018</b>	
<b>RAG Day: Thursday 20 December 2018</b>	

<b>Spring Term 2019</b>	
<b>Start of term: Monday 7 January 2019</b>	<b>End of term: Friday 5 April 2019</b>
<b>Reading weeks: Monday 18 February 2019 – Friday 22 February 2019</b>	
<b>Easter Holidays: Monday 8 April 2019 – Friday 19 April 2019</b>	

<b>Summer Term 2019</b>	
<b>Start of term: Tuesday 23 April 2019</b>	<b>End of term: Friday 21 June 2019</b>
<b>Reading week: Monday 27 May 2019 – Friday 31 May 2019</b>	
<b>Bank Holiday: Monday 22 April 2019, 6 May 2019 and 27 May 2019</b>	

*The College is open throughout the year, with the exception of the Christmas period shown above and Bank Holidays.*

*The dates shown above signify principal teaching and learning dates, key administrative times and College closures.*

You are asked to pay particular attention to assessment dates and ensure you check with your academic team if you are unsure when assessments are due. Students are expected to be available during these periods and absence from scheduled assessments may have a significant impact on your studies. Please take care to avoid these dates when planning any holidays.

## **5. Communication**

### **UWE**

Throughout your time with us, you will receive regular communication from your programme team, your module leaders, and also administrative staff, and it is your responsibility to ensure that you read everything that you are sent, and act upon it where appropriate.

The main communication channel used by the University and the Faculty is the UWE student portal, myUWE. The myUWE tab appears at the top of the university intranet home page alongside that of the library and gives you access to the portal, where all information relevant to you will appear. From here, you can gain access to your emails, which you should read regularly, and you will also receive other essential messages through the myUWE announcements channel.

In addition myUWE gives you access to a wide range of course information, including the Blackboard web sites for the modules you are currently studying. Blackboard courses provide the main communication channel for module specific information and these too should be checked regularly for new content and announcements.

Please click this [link](#) for further information on all aspects of your myUWE portal.

The Faculty also has a Communications Policy setting out the communication standards and behaviours that our staff and students should expect from each other. This policy is reviewed annually and published via Blackboard.

## **Bridgwater and Taunton College**

The main communication channel used by Bridgwater and Taunton College is via your College email accounts and Blackboard. Blackboard contains your course specific information and is used by staff to send important announcements and updates regarding your programme.

You are also expected to check regularly (at least twice a week) as this is the email address that the College will use to contact you and will not be responsible if you miss important information such as details about classes, assessments, examinations, or results. You can set up your College email account to re-direct emails to your personal account if preferred.

Blackboard is available via this [link](#), you will require your college log-in details to enter.

## **6. Regulations/Policies**

The [University Regulations](#) are designed to ensure consistency and equity for students and to provide clarity for students as to how they will be treated by the University in any given situation.

It is essential that you familiarise yourself with the regulations and if you require support/guidance in relation to how the regulations affect you in a given situation, you should contact the [Information Points](#) or [Student Advisers](#).

In addition to the academic regulations, students should pay particular attention to the [IT Acceptable Use Policy](#) as this defines what you can or cannot do for the protection of systems and of individual users.

### **Word Count Policy**

The university's [Word Count Policy](#) clarifies what is included in any word count for a piece of work, and what the penalty is for exceeding an agreed word count.

### **Health and Safety**

We strive for a positive health and safety culture. Health and Safety is everyone's concern so you should take note of the following information. You can view Bridgwater and Taunton College's Health and Safety Policy [here](#).

For more information on Health and Safety throughout UWE's university campus please see the [Health and Safety Unit website](#).

### **Sustainability**

UWE cares about sustainability. Together with the Students' Union, we are changing how we do things. This includes: managing energy use to reduce emissions and minimise costs; recycling as much

waste as possible; travel planning to reduce emissions and promote alternatives to the car – and much more. Visit this [page](#) for further information about what UWE is doing and how you can join in.

## **7. Advice and Support**

Academic support is provided through a number of roles and students should seek advice from academic staff on specific matters relating to teaching and learning.

**Course Leader and Academic Personal Tutor** – programme related issues, issues impacting on a number of modules within the programme, programme specific activities happening outside modules

**Curriculum Manager** – module related issues, issues that affect that module only

**HE Team** – anything you wish to discuss including student experience and expectation: [HE@bridgwater.ac.uk](mailto:HE@bridgwater.ac.uk)

### **LRC Support**

The college's LRC at Bridgwater and Taunton College's Bridgwater Centre is currently the main library centre.

LRC staff are always happy to assist with any requests you may have for searching out texts or for stocking new texts if there is adequate demand. Staff are available at enquiry desks in each LRC to help you with any query you may have about using the library or finding information. Please refer to the LRC website for staffed service times.

You will receive an induction to the LRC in the form of HEADstart sessions.

There is a HE study room located in the LRC at the Bridgwater Centre. This is solely for the use of HE students and you have to use your student ID card to access the room.

For more information on library services at UWE, click this [link](#).

### **Disability or Learning Support:**

The College is very supportive of students with disabilities, and continually make adjustments to assist these students. If we can identify your needs sufficiently well in advance of your start at the College, we are better able to put in place appropriate arrangements.

### **If you have not told us about your disability**

Please contact the College's own or the University's [Disability Assist Services](#) to discuss your needs.

### **IT Support**

Help is available from our Technology Helpdesk. The team is able to answer any College specific IT queries or difficulties that you may have. The helpdesk is located directly opposite the Bridgwater LRC and you can contact them via [technologyhelpdesk@bridgwater.ac.uk](mailto:technologyhelpdesk@bridgwater.ac.uk) or alternatively you can call the technology helpdesk on 01278 451257

### **Student Representation**

The student representative system is highly valued by the College as it provides students with the opportunity to make a difference to their programme and the wider University. Participation is beneficial to students in terms of skills development and viewed positively by employers thereby boosting your C.V. Each course is asked to recruit at least one rep for each year.

Further information is available from your programme leader, on Blackboard under [HE Information](#), or by contacting [HE@bridgwater.ac.uk](mailto:HE@bridgwater.ac.uk).