PROGRAMME SPECIFICATION

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Award titles

Programme Title(s)

FdEng Industrial Engineering (Mechanical)
FdEng Industrial Engineering (Manufacturing and Production)
FdEng Industrial Engineering (Electrical and Automation)

BEng (Hons) Industrial Engineering (Mechanical)
BEng (Hons) Industrial Engineering (Manufacturing and Production)
BEng (Hons) Industrial Engineering (Electrical and Automation)
BEng (Hons) Industrial Engineering (Engineering Management)
BEng (Hons) Industrial Engineering (Mechatronics)

Internal Programme Title(s) (if different to the title on the certificate)
BEng (Hons) Industrial Engineering (Mechanical) (Top-up)
BEng (Hons) Industrial Engineering (Manufacturing and Production) (Top-up)
BEng (Hons) Industrial Engineering (Electrical and Automation) (Top-up)
BEng (Hons) Industrial Engineering (Engineering Management) (Top-up)
BEng (Hons) Industrial Engineering (Mechatronics) (Top-up)

Programme to be included in Graduation Ceremonies
Yes

Delivery period

5 years from Sept 2022

Intake points

Three intakes per year, September, January and May

Regulatory details

Regulatory details
Awarding body
Glyndŵr University
Programme delivered by
Glyndŵr University - all programmes
Location of delivery
Glyndŵr University Plas Coch Campus

Faculty/Department
Engineering Faculty of Arts, Science and Technology
Exit awards available
Cert HE Industrial Engineering
Professional, Statutory or Regulatory Body (PSRB) accreditation
The programme has been developed in line with the Engineering Council Engineering Competence (UK-SPEC) standards for Accredited Higher Education programmes fourth edition (AHEP 4) such that the programme content structure, implementation, management and the learning outcomes adhere to the guidelines defined, as demonstrated with the module specifications and the curriculum matrix table, within. The previously validated programme is accredited by both the Institution of Engineering & Technology (IET) and Institution of Mechanical Engineers (IMechE). The programme contributes towards Engineering Council professional registration. (Note IMechE cannot accredit the electrical routes due to insufficient mechanical content). At the next possible opportunity, we will be seeking accreditation for all programmes.
Please add details of any conditions that may affect accreditation (e.g. is it dependent on choices made by a student?) *e.g. completion of placement.*
N/A
HECoS codes
100190 (Mechanical Engineering) 100209 (Manufacturing and Production) 100163 (Electrical and Automation) 100170 (Mechatronics) 100078 (Engineering Management)
UCAS code
N/A
Relevant QAA subject benchmark statement/s
QAA Foundation Degree Characteristics Statement (2020) Subject Benchmark Statement; Engineering (February 2019)
Mode of study
Part time **(All Programmes)** Full & part time **BEng Industrial Engineering (Mechatronics) & BEng Industrial Engineering (Engineering Management)**
Normal length of study for each mode of study
FdEng – 2 Years part-time on an extended year BEng Top up 1 Year full time (normal academic year) or part time on extended year
Language of study
English
Transitional arrangements for re-validated provision if applicable
No arrangements are applicable. *There are currently no students on the level 4 FdEng.* *The BEng Top up is currently recruiting and applicants will be informed of changes to the programmes.*
The following University Award Regulations apply to this programme (*highlight the appropriate ones and delete the others)*

General Regulations and Definitions

Regulations for Bachelor Degrees, Diplomas, Certificates and Foundation Degrees

Language Admissions Policy

OFFICE USE ONLY	
Date of validation event:	16 May 2022
Date of approval by Academic Board:	22 August 2022
Approved Validation Period:	*5 years from Sept 2022*
Transitional arrangements approved (if revalidation)	*N/A*
Date and type of revision:	*Enter the date of any subsequent revisions (Detail the type of revision made and the implementation date)*

1 Criteria for admission to the programme

Standard entry criteria

Entry requirements are in accordance with the University's admissions policy, please click on the following link for more information. Admissions policies

The University's entry requirements are set out on our Admissions webpages

Qualification	Entry requirements
2-year Foundation degree	48-72 UCAS Tariff points

For the BEng (Top up) Industrial Engineering routes, applicants must satisfy the entry criteria and admissions tutor by producing documentary evidence that they have achieved a qualification at level 5 or better in a relevant discipline and have the necessary background, having accumulated the equivalent of 240 HE credits with at least 120 credits at level 5. Admission to the programme may specifically be gained by students who can present evidence of one of the following:

1. Have passed a Dip HE in a relevant discipline.
2. Have passed a Glyndŵr University FdEng in Industrial Engineering
3. Have acquired 240 credits at levels 4 and 5, with at least 120 credits at level 5, from other suitable and relevant HE studies (Interview will be necessary prior to offer being made).
4. Have passed a qualification from an EU or other overseas country equivalent, as defined as equivalent NARIC, to a Dip HE or better in a relevant discipline, or where the university has undertaken a mapping exercise reviewed and approved by APSC.

These figures are intended as a general guide. Each application is considered individually.

International entry qualifications are outlined on the National Academic Recognition and Information Centre (NARIC) as equivalent to the relevant UK entry qualification.

In addition to the academic entry requirements, all applicants whose first language is not English, nor Welsh must demonstrate English language proficiency.

European students are able to provide this evidence in a number of ways (please see http://www.glyndwr.ac.uk/en/Europeanstudents/entryrequirements/ for details), including IELTS.

International students are required to provide an English Language Certificate which meets the requirements of the University *(please see http://www.glyndwr.ac.uk/en/Internationalstudents/EntryandEnglishLanguageRequirements/ for details).*

Non-Standard entry criteria

For the FdEng Industrial Engineering programmes applicants must be employed in an appropriate role in industry. Advice and guidance to applicants regarding their appropriate experience and their industrial background will be offered by the academic programme team.

For the BEng (Top up) Industrial Engineering programmes part-times routes applicants must be employed in an appropriate role in industry. Advice and guidance to applicants regarding their appropriate experience and their industrial background will be offered by the academic programme team.

For the BEng (Top up) Industrial Engineering routes, other relevant qualifications or combination of relevant qualifications and industrial experience may be considered for admission on an individual basis. The Programme Leader can advise.

2 Record of Prior (Experiential) learning

Applicants may enter the programme at various levels with Recognition of Prior Learning (RPL) or Recognition of Prior Experiential learning (RPEL) in accordance with the University General Regulations.

3 DBS Requirements

N/A

4 Suitability for Practice Procedure

N/A

5 Aims of the programme

The key aim of the FdEng and BEng Top up programmes is to develop the intellectual and application skills of individuals by means of personal management, knowledge acquisition, problem analysis, deductive skills, synthesis and evaluation of solutions, and including an awareness of social and environmental implications, in preparation for:

- A career as a professional engineer in industry;
- A management role in industry;
- Life-long learning and an appreciation of the value of education in continuing professional development.

The qualifications within this submission are designed to provide students with the essential knowledge, skills and techniques which underpin and enhance the learning process. They

will be encouraged to develop a positive, reflective, and professional approach to their learning, taking responsibility for their own progression and career development. These transferable skills enable and promote sustainable lifelong learning and continuing professional development within their professional field or sector.

The Foundation degree programmes are designed to provide an opportunity for part time students to apply their knowledge, skills and ideas within their own working environment.

The BEng Top up programmes are designed to aid career progression for those with level 5 qualifications and to up skill and update their knowledge.

6 Distinctive features of the programme

The Industrial Engineering (FdEng and BEng top up) Programmes have been developed to meet the demands of industry to provide engineering qualifications that not only cover the traditional theoretical aspects associated with this vocation but also encompass new and emerging technologies.

Programme's content has been inspired and developed with feedback from the Engineering Industry Liaison Group (EILG). Particular reference was applied to the core skills that are required for career progression, people management and professional competencies. Members of the EILG are senior figures in their respective companies which are at the fore of local engineering industry. Several members have studied the FdEng and BEng top up routes at WGU and are therefore perfectly placed to advise on what they feel should be added to the programmes for their own current employers.

The foundation degrees give the basis for engineers in their early careers or for those who want to upskill in particular areas of technology. The routes through the FdEng programmes mirror the key industrial themes in the local area.

The Bachelor's Degree (top up) programmes have been designed with career progression in mind and to develop the knowledge of the students to be leaders in their chosen field. The technical elements of the projects are complimented by the professional engineering module which creates a depth of understanding of the responsibilities of engineers in a modern setting.

7 Credit Accumulation and exit awards

The two-year, part time FdEng programme will utilise the extended academic year with three trimesters of delivery enabling students to undertake 120 credits per extended academic year. Day release taught modules will be delivered over three trimesters with assessment and progression boards taking place in line with the University structure (September).

All BEng (top up) programmes will be run on a part time basis. Additionally, the BEng Industrial Engineering (Mechatronics) & BEng Industrial Engineering (Engineering Management) routes can be offered on a full-time basis, namely for international students.

The full-time cohorts will utilise a normal academic year with two trimesters. Assessment and progression boards will be held for the full-time students at the end of trimester 2, typically in early June

Exit Awards
Successful completion of 120 credits at Level 4 entitles the student to the exit award of Certificate of Higher Education Engineering

BEng top-up award doesn't normally offer exit award. Students who have previously graduated from GU with a Foundation Degree may request Ordinary Degree as exit award, providing that they have completed all Level 6 modules and achieved more than 60 credits but less than 120 credits at Level 6 and are able to return their previous GU level 5 qualification in exchange for an Ordinary Degree.

8 Programme Structure Diagram, including delivery schedule

The three FdEng programmes share a common first year. The specialist module are then taught in level 5. Some modules may be shared within programmes, but each programme has a unique blend of modules required for the subject area.

<table>
<tr><th rowspan="2"></th><th colspan="3">FdEng Industrial Engineering</th></tr>
<tr><th>Manufacturing and Production</th><th>Mechanical</th><th>Electrical and Automation</th></tr>
<tr><th colspan="4">Level 4</th></tr>
<tr><td rowspan="2">SEM 1</td><td colspan="3">ENG495 Analytical Engineering Techniques</td></tr>
<tr><td colspan="3">ENG497 Electrical Engineering</td></tr>
<tr><td rowspan="2">SEM 2</td><td colspan="3">ENG499 Mechanical Engineering</td></tr>
<tr><td colspan="3">ENG496 Design & CAD</td></tr>
<tr><td>SEM 3</td><td colspan="3">ENG4A1 Engineering Management</td></tr>
<tr><td>SEM 1-3</td><td colspan="3">ENG4A2 Work Based Investigation and Learning</td></tr>
<tr><th colspan="4">Level 5</th></tr>
<tr><td rowspan="2">SEM 1</td><td colspan="3">ENG5AA Analytical Control techniques</td></tr>
<tr><td colspan="2">ENG5A1 Materials Engineering</td><td>ENG5AK Power, Distribution and System Design</td></tr>
<tr><td rowspan="2">SEM 2</td><td>ENG5AC Industrial Automation & PLCs</td><td>ENG5AB Computer Aided Engineering</td><td>ENG5AC Industrial Automation & PLCs</td></tr>
<tr><td>ENG5AH Mechatronics Application & Manufacturing Systems</td><td>ENG5AG Mechanical Systems Design</td><td>ENG5AE Instrumentation & Condition Monitoring</td></tr>
<tr><td>SEM 3</td><td colspan="3">ENG5AJ Modern Manufacture, Sustainability & Industry 4.0</td></tr>
<tr><td>SEM 1-3</td><td colspan="3">ENG5AD Industrial Project</td></tr>
</table>

The five BEng programmes share two common modules. Some modules may be shared within programmes, but each programme has a unique blend of modules required for the subject area.

	BEng (Hons) Industrial Engineering (Top up)				
	Manufacturing and Production	**Mechanical**	**Electrical and Automation**	**Mechatronics**	**Engineering Management**
Level 6					
SEM 1	**ENG6AC** Machine and Production Systems	**ENG6A5** Mechanical Engineering Modelling and Simulation	**ENG6A6** Electrical and Electronic Engineering Modelling and Simulation	**ENG6A3** Mechatronic Applications	**ENG6AD** Maintenance and Safety Systems
	ENG6A1 Continuous Improvement and Lean		**ENG 6AB** Industrial Communications Systems		**ENG6A1** Continuous Improvement and Lean
SEM 2	**ENG6A8** Professional Engineering				
	ENG6AE Managing Workforce, Engagement & Commitment	**ENG6AF** Product Design	**ENG6B9** Power Electronics and Electrical Machines	**ENG60D** Electronic Design and Testing	**ENG6AE** Managing Workforce, Engagement & Commitment
SEM 1-2 FT SEM 1-3 PT	**ENG6AG** Project				

FdEng Industrial Engineering (Mechanical)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG495	Analytical Engineering Techniques	20	Core	1
Level 4	ENG497	Electrical Engineering	20	Core	1
Level 4	ENG499	Mechanical Engineering	20	Core	2
Level 4	ENG496	Design & CAD	20	Core	2
Level 4	ENG4A1	Engineering Management	20	Core	3
Level 4	ENG4A2	Work Based Investigation and Learning	20	Core	1-3
Level 5	ENG5AA	Analytical Control techniques	20	Core	1
Level 5	ENG5A1	Materials Engineering	20	Core	1
Level 5	ENG5AB	Computer Aided Engineering	20	Core	2
Level 5	ENG5AG	Mechanical Systems Design	20	Core	2
Level 5	ENG5AJ	Modern Manufacture, Sustainability & Industry 4.0	20	Core	3
Level 5	ENG5AD	Industrial Project	20	Core	1-3

FdEng Industrial Engineering (Manufacturing and Production)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG495	Analytical Engineering Techniques	20	Core	1
Level 4	ENG497	Electrical Engineering	20	Core	1
Level 4	ENG499	Mechanical Engineering	20	Core	2
Level 4	ENG496	Design & CAD	20	Core	2
Level 4	ENG4A1	Engineering Management	20	Core	3
Level 4	ENG4A2	Work Based Investigation and Learning	20	Core	1-3
Level 5	ENG5AA	Analytical Control techniques	20	Core	1
Level 5	ENG5A1	Materials Engineering	20	Core	1
Level 5	ENG5AC	Industrial Automation & PLCs	20	Core	2
Level 5	ENG5AH	Mechatronics Application & Manufacturing Systems	20	Core	2
Level 5	ENG5AJ	Modern Manufacture, Sustainability & Industry 4.0	20	Core	3
Level 5	ENG5AD	Industrial Project	20	Core	1-3

FdEng Industrial Engineering (Electrical and Automation)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 4	ENG495	Analytical Engineering Techniques	20	Core	1
Level 4	ENG497	Electrical Engineering	20	Core	1
Level 4	ENG499	Mechanical Engineering	20	Core	2
Level 4	ENG496	Design & CAD	20	Core	2
Level 4	ENG4A1	Engineering Management	20	Core	3
Level 4	ENG4A2	Work Based Investigation and Learning	20	Core	1-3
Level 5	ENG5AA	Analytical Control techniques	20	Core	1
Level 5	ENG5AK	Power, Distribution and System Design	20	Core	1
Level 5	ENG5AC	Industrial Automation & PLCs	20	Core	2
Level 5	ENG5AE	Instrumentation & Condition Monitoring	20	Core	2
Level 5	ENG5AJ	Modern Manufacture, Sustainability & Industry 4.0	20	Core	3
Level 5	ENG5AD	Industrial Project	20	Core	1-3

BEng (Hons) Industrial Engineering (Manufacturing and Production) Level 6 Top-up (Part-time)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 6	ENG6AC	Machine and Production Systems	20	Core	1
Level 6	ENG6A1	Continuous Improvement and Lean	20	Core	1
Level 6	ENG6A8	Professional Engineering	20	Core	2
Level 6	ENG6AE	Managing Workforce, Engagement & Commitment	20	Core	2
Level 6	ENG6AG	Project	20	Core	1-3

BEng (Hons) Industrial Engineering (Mechanical) Level 6 Top-up (Part-time)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 6	ENG6A5	Mechanical Engineering Modelling and Simulation	20	Core	1
Level 6	ENG6A1	Continuous Improvement and Lean	20	Core	1
Level 6	ENG6A8	Professional Engineering	20	Core	2
Level 6	ENG6AF	Product Design	20	Core	2
Level 6	ENG6AG	Project	20	Core	1-3

BEng (Hons) Industrial Engineering (Electrical and Automation) (Part-time)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 6	ENG6A6	Electrical and Electronic Engineering Modelling and Simulation	20	Core	1
Level 6	ENG6AB	Industrial Communications Systems	20	Core	1
Level 6	ENG6A8	Professional Engineering	20	Core	2
Level 6	ENG6B9	Power Electronics and Electrical Machines	20	Core	2
Level 6	ENG6AG	Project	20	Core	1-3

BEng (Hons) Industrial Engineering (Mechatronics) (Full-time or Part-time)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 6	ENG6A3	Mechatronic Applications	20	Core	1
Level 6	ENG6AB	Industrial Communications Systems	20	Core	1
Level 6	ENG6A8	Professional Engineering	20	Core	2
Level 6	ENG60D	Electronic Design and Testing	20	Core	2
Level 6	ENG6AG	Project	20	Core	1-2 (FT) 1-3 (PT)

BEng (Hons) Industrial Engineering (Engineering Management) (Full-time or Part-time)

Level	Module Code	Module Title	Credit Value	Core/Option	Delivery (i.e., semester 1,2)
Level 6	ENG6AD	Maintenance and Safety Systems	20	Core	1
Level 6	ENG6A1	Continuous Improvement and Lean	20	Core	1
Level 6	ENG6A8	Professional Engineering	20	Core	2
Level 6	ENG6AE	Managing Workforce, Engagement & Commitment	20	Core	2
Level 6	ENG6AG	Project	20	Core	1-2 (FT) 1-3 (PT)

9 Intended learning outcomes of the programme

Foundation Degree intended learning outcomes

FdEng Knowledge and understanding		
	Level 4	Level 5
A1	*Develop an understanding of mathematical concepts or principles relevant to Industrial Engineering.*	*Apply mathematical concepts or principles relevant to Industrial Engineering problems.*
A2	*Identify and explain scientific principles relevant to Industrial Engineering.*	*Develop scientific principles and demonstrate an understanding of relevant applications within Industrial Engineering.*
A3	*Develop an awareness of current technologies and their uses within Industrial Engineering.*	*Appraise current and future technologies within Industrial Engineering and develop an awareness of the sustainability implications.*

Intellectual skills		
	Level 4	Level 5
B1	*Identify problems and potential causes and effects.*	*Identify and analyse problems and use diagnostic methods to recognise causes and achieve satisfactory solutions.*
B2	*Identify, organise and use resources to complete tasks safely and efficiently*	*Identify, organise and use resources effectively to complete tasks, with consideration for cost, quality, safety and environmental impact.*
B3	*Apply given tools/methods to a well-defined problem and begin to appreciate the complexity of the issues.*	*Recognise and define key elements of problems and choose appropriate methods for their resolution in a considered manner.*
B4	*Form opinions based upon knowledge and understanding of the subject in question.*	*Present arguments to uphold decisions following an evaluation of a particular subject.*

Subject skills		
	Level 4	Level 5
C1	*Conduct given laboratory experiments to investigate engineering principles and properties of devices and systems.*	*Devise laboratory experiments to prove engineering principles and properties of devices and systems.*
C2	*Design and construct devices and systems to meet given performance criteria.*	*Design and construct devices/systems and devise methods of testing to check for given performance criteria.*
C3	*Monitor processes or systems and develop an awareness of possible improvements.*	*Monitor processes or systems, trend processes and make predictions, in order to bring about continuous improvement.*
C4	*Propose and plan a self-directed individual programme of investigation.*	*Plan and undertake and report a self-directed individual programme of investigation and design.*

Practical, professional and employability skills		
	Level 4	Level 5
D1	*Identify basic information and suitable sources, carry out searches and bring information together in a way that ensures work is accurate, clear and properly saved.*	*Plan how to obtain and use required information for the purpose of an activity and use appropriate structures and procedures to explore and develop information.*
D2	*Use oral, written and digital methods for the communication of technical and other information.*	*Use oral, written and digital methods for effective communication of technical and other information.*
D3	*Apply safe systems of work.*	*Manage and apply safe systems of work.*
D4	*Work reliably without close supervision accepting responsibility for tasks undertaken*	*Demonstrate the ability to work reliably and effectively without supervision accepting responsibility for tasks undertaken.*

FdEng Industrial Engineering (Manufacturing and Production)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on FdEng Industrial Engineering (Manufacturing and Production) will also

	Level 5
A4	Apply a comprehensive knowledge of industrial process systems to validate new system architecture.
C5	Formulate and implement solutions to complex new and existing automation problems

FdEng Industrial Engineering (Electrical and Automation)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on FdEng Industrial Engineering (Electrical and Automation) will also

	Level 5
A5	Apply a comprehensive knowledge of industrial process systems to validate new system architecture.
C6	Formulate and implement solutions to complex new and existing automation problems

FdEng Industrial Engineering (Mechanical)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on FdEng Industrial Engineering (Electrical and Automation) will also

	Level 5
A6	be able to deepen their understanding of materials behaviour in combination with applied machine design.
C7	be able to demonstrate skills of effective design, modelling and performance analysing of basic structural systems to machines and robotic systems.

BEng Industrial Engineering (top up) – All routes

Knowledge and understanding		
	Level 6	Level 6 Honours Degree
A1	*Apply mathematical principles and analytical techniques to integrated Industrial Engineering problems.*	*Model and analyse complex industrial engineering systems using appropriate mathematical methods, while recognising the limitations of such analysis.*
A2	*Investigate Industrial Engineering principles and applications.*	*Demonstrate a wide knowledge and a comprehensive understanding of complex industrial engineering systems and the ability to analyse and synthesise such engineering principles and systems.*
A3	*Display a critical awareness of current issues and future prospects at the forefront of the discipline*	*Critically evaluate current and future developments within Industrial Engineering and the careful consideration of the sustainability implications.*

Intellectual skills		
	Level 6	Level 6 Honours Degree
B1	*Apply engineering principles to the solution of design and operation problems in industrial engineering.*	*Innovate in solving novel and challenging problems and be aware of the limitations of the solutions in industrial engineering.*
B2	*Assess the resources and techniques used to complete tasks appropriately, and to achieve engineering objectives. Demonstrate a strong understanding of the legal requirements, appropriate ethical conduct and associated risks that may occur before, during and after the task has been completed.*	*Critically assess the resources and techniques used to complete tasks, and to achieve engineering objectives. Recommend new techniques or use of resources based on a strong understanding of legal requirements, appropriate ethical conduct and associated risks that may occur before, during and after the task has been completed.*
B3	*Analyse, evaluate and interpret engineering data.*	*Critically appraise engineering problems. Generate and analyse data to solve complex engineering problems.*
B4	*Assess, interpret and implement decisions with an awareness of technical, economic and commercial implications.*	*Assess, interpret and implement decisions with a critical awareness of technical, economic and commercial implications.*

Subject skills		
	Level 6	Level 6 Honours Degree
C1	*Conduct laboratory experiments to investigate engineering principles and properties of devices and systems in industrial engineering.*	*Conduct and analyse experiments, adapting experimental procedures to novel situations if necessary, analysing experimental data in detail, and drawing comprehensive conclusions*
C2	*Design, construct, test and evaluate devices and systems to meet given performance criteria, including the use of computer-based tools where appropriate.*	*Design, construct, test and evaluate devices and systems to meet given performance criteria, including the use of computer-based tools.*
C3	*Extract and evaluate information relating to industrial engineering. Prepare descriptive, interpretive and evaluative technical reports.*	*Analyse and evaluate processes, techniques or systems relating to unfamiliar problems with an awareness of quality issues and their application to continuous improvement.*
C4	*Plan and carry out a personal programme of work.*	*Propose, plan, undertake and report a self-directed individual programme of investigation, design and implementation.*

Practical, professional and employability skills		
	Level 6	Level 6 Honours Degree
D1	*Communicate effectively in writing, verbally and through graphical representations.*	*Identify problems, bias and recommendations effectively through graphical, written and verbal forms of communication.*
D2	*Optimise use of resources and time in project planning and implementation.*	*Use information technology competently - to source information, to prepare reports, to model performance using specialised software packages.*
D3	*Learn independently and be familiar with how to access key information.*	*Evaluate and reflect on own performance and self-management.*
D4	*Demonstrate the practical skills of independent planning and execution of projects which relate to relevant engineering discipline.*	*Interpret the role of the engineer as a manager of himself/herself and of others, ensuring the highest level of professional and ethical conduct and acting within the legal framework governing engineering activities.*

BEng (Hons) Industrial Engineering (Manufacturing and Production)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on BEng (Hons) Industrial Engineering (Manufacturing and Production) will also

	Level 6	Level 6 (Hons)
A4	*Demonstrate an ability to critically appraise existing production processes, make judgements and propose solutions.*	*Propose and formulate a new production systems through a programme of self-managed learning.*
C5	*Analyse data to improve the efficiency of existing systems using the existing and new management processes.*	*Through analysis and reasoning be able to communicate the justification of a student lead project.* *Critically review, consolidate a systematic and coherent body of knowledge in management.*

BEng (Hons) Industrial Engineering (Electrical and Automation)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on BEng (Hons) Industrial Engineering (Electrical and Automation) will also

	Level 6	Level 6 (Hons)
A5	*Demonstrate an ability to critically appraise existing controlled processes, make judgements and propose solutions.*	*Propose and formulate a new automation/control system through a programme of self-managed learning.*
C6	*Analyse data to improve the efficiency of existing systems using the latest technology in electrical design and automation.*	*Through analysis and reasoning be able to communicate the justification of a student lead design project.* *Critically review, consolidate a systematic and coherent body of knowledge in automation.*

BEng (Hons) Industrial Engineering (Mechanical)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on BEng (Hons) Industrial Engineering (Mechanical) will also

	Level 6	Level 6 (Hons)
A6	*Demonstrate an ability to critically appraise existing designs and simulations, make judgements and propose solutions.* *.*	*Propose and formulate new designs and simulations through a programme of self-managed learning.*
C7	*Analyse data to improve the efficiency of existing systems using the latest technology in mechanical design*	*Through analysis and reasoning be able to communicate the justification of a student lead design project.* *Critically review, consolidate a systematic and coherent body of knowledge in mechanical design*

BEng (Hons) Industrial Engineering (Mechatronics)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on BEng (Hons) Industrial Engineering (Mechatronics) will also

	Level 6	Level 6 (Hons)
A7	*Demonstrate an ability to critically appraise existing controlled processes, make judgements and propose mechatronic solutions.*	*Propose and formulate new automation systems through a programme of self-managed learning.*
C8	*Analyse data to improve the efficiency of existing systems using the latest technology in mechatronics.* *.*	*Through analysis and reasoning be able to communicate the justification of a student lead design project.* *Critically review, consolidate a systematic and coherent body of knowledge in mechatronics.*

BEng (Hons) Industrial Engineering (Engineering Management)

In addition to meeting the generic Programme Learning Outcomes detailed above, students on BEng (Hons) Industrial Engineering (Engineering Management) will also

	Level 6	Level 6 (Hons)
A8	*Demonstrate an ability to critically appraise existing management processes, make judgements and propose solutions.*	*Critically analyse engineering management techniques and processes*
C9	*Analyse data to improve the efficiency of existing systems using the existing and new management processes.*	*Through analysis and reasoning be able to communicate the justification of a student lead project.* *Critically review, consolidate a systematic and coherent body of knowledge in management.*

10 Learning and teaching strategy

The programme is informed and guided by the Active Learning Framework (ALF), which incorporates a blended learning approach. This approach is a key part of the delivery and involves teaching, learning support, and the delivery of online sessions. The embedding of ALF provides students with a more flexible approach to their learning and is fundamental in giving all students equal opportunity to succeed. This is embedded in the University's Strategy for Supporting Student Learning and Achievement (SSSLA), which aims to 'drive the development of the pedagogic approaches required to enable flexible, accessible and inclusive curriculum delivery. It seeks to assist the student to become an independent learner, delivering subject skills alongside the embedding of skills for employment. The curriculum is designed to encourage an appreciation for learning. Learning is enriched by appropriate underpinnings, current research, industrial applications and the development of transferable skills.

The team recognises that the learning and teaching strategy should reflect the different requirements of part time, industrial students. In order to achieve this the team have agreed the following strategy:

1. A key feature of FdEng programmes a proportion of learning and training takes place 'on-the-job' while students are engaged in work activity. It is therefore fundamental that a student's work will provide a source for learning, an environment for learning and the key context for learning. This is recognised by the team and supported by the programme leader linking the workplace to the programme of study.

2. To ensure that the teaching methods adopted for classroom and related activity are planned effectively so that tutors use a range of examples, reflecting the diversity of experiences when explaining the application of theory to practice. This will also provide the opportunity for students to bring their work-based experiences back into the teaching space and develop a shared learning network with their peers.

3. To ensure that group discussions, case study / problem solving activity relate to and reflect the different aspects of practice represented within the classroom.

4. Where guest lecturers are used, they will be briefed by the module tutor to ensure that they are aware of the student profile and that the proposed presentation / lecture accommodates this.

5. Students will be supported by tutorial discussions between the tutor and student to ensure that the proposed learning reflects the practice needs of the student.

6. To ensure that the assessment strategy and methods of assessment are sufficiently flexible to enable students to apply and demonstrate their learning in a context which is relevant to them.

7. Academic skills will be embedded into all programmes and modules. This will be evident through the key skills mapping to learning outcomes in module specifications. These skills will be developed through learning and teaching activities, online support, formative and summative assessment. Students will be made aware of the importance of academic skills and the embedding of these will be reviewed periodically by the programme team.

The programme team has developed a strategic approach to delivering learning and teaching which meets the needs of the student group, enables skills development, allows

for the practical application of knowledge and encourages students to become reflective and critically evaluative practitioners. The balance between face-to-face lectures and directed study is detailed within the module specifications. Students will be encouraged, through classroom activities and assessments, to reflect on both their own and organisational behaviour in order to improve their performance as well as giving them the knowledge and confidence to contribute towards the development of their organisational performance.

Learning and Teaching are activities which operate at different levels simultaneously. To the student the immediate activity relates to the explicit topics being studied. However, transferable skills are also inherent in order for the student to both carry out the tasks and to develop. These elements are built into the modules comprising the programme as what might be called embedded issues. Other embedded issues, such as awareness of environmental impact, sustainability and commercial implications are also integrated in modules throughout the programme.

Knowledge and Understanding

Acquisition of knowledge is by means of lectures, practical and laboratory-based exercises, investigative exercises involving searching of various sources, directed reading and further reading. Pre-written notes will have a role in supporting these activities. Understanding is developed through tutorials, discussion, evaluation exercises and individual exercise sheets.

Intellectual Skills

These skills are developed by the students undertaking individual activities, within tutorials and practical sessions, or by being required to contribute to group activities. In each case, throughout the course a range of problems are set requiring the student to carry out information searches, analysis, design formulation, synthesis, test definition, modelling (software based), by methodology or by calculation. Reflective self-evaluation forms part of this. Critical evaluation is encouraged via debate and discussion in the tutorials.

Key Skills

Key skills include: communication skills, ability to work in a group or on one's own, management of time, use of computers and other technology, the application of calculations (the discipline of regularly attending and contributing to classes exercises the transferable skills of self-management and time management). Each module specification provides examples of transferable skills covered within its learning outcomes. Beyond this most modules require performance in several skill areas including self-management, communication and use of computer packages. All of these are monitored by the module tutors and feedback given.

VLE (Virtual Learning Environment)

Extensive use is made of Glyndŵr University's VLE, Moodle, to enhance the learning experience. Moodle is used by staff to provide information about the courses and individual modules. In addition to lecture notes, it is used to provide students with additional information such as embedded content (e.g., videos), Moodle quizzes, discussion boards, activities and links to other sources of information.

11 The Wrexham Glyndwr Graduate

At Glyndŵr University we aim to help students develop and enhance key employability skills and capabilities during their study. There are three key areas with different attributes, attitudes and skillsets and the aim is to help students have the opportunity to enhance and develop skills such as resilience, adaptability, confidence, team working, emotional intelligence and communication, creativity and acting ethically and sustainably. Programmes are designed to enable students to develop and enhance these skills via module content,

module learning outcomes and assessment opportunities. Each module will help provide different opportunities for developing and enhancing these capabilities.

The Careers team are available to provide information, advice and guidance and access to resources for potential students, current students and graduates. WGUConnect provides students with access to an online directory of vacancies.

The Careers team can support students with employability and interview skills such as use of the STAR (Situation, Task, Action, Result) technique that many recruiters use to gather relevant information about a specific capability that the job requires.

Professional registration to an engineering body as a student member is actively encouraged, through guest lectures by representatives of these bodies and by lecturing staff. Continuing Professional Development (CPD) is implemented in their studies with regular events being held at the University in partnership with the local branches of the IET, IMechE, RAeS and IoP.

12 Work based/placement learning statement

Within part-time industrial programmes, students are expected to be in a relevant full-time position and to apply relevant learning to their workplace through applied projects and utilising real-world examples within their assessments.

13 Welsh medium provision

Students are entitled to submit assessments in the medium of Welsh. When a student elects to submit the assessment in the Welsh language, the Coleg Cymraeg Cenedlaethol can support the team with additional resources and external subject specific assessors. In addition, Welsh language personal tutorials can be made available for students. During the enrolment process and induction, the support is highlighted and resources are given to learners to encourage them to learn and use Welsh in the workplace.

14 Assessment strategy

The programmes provide opportunities for formative, diagnostic and summative feedback. The assessment methods used reflect the needs of the student group and allows for the knowledge and learning outcomes of the programme to be tested as well as allowing for the development and assessment of practical and transferable skills.

Formative assessment will be utilised in all modules to allow students to develop, improve and prepare for summative assessment. The form of this assessment will vary depending on the module and skills being developed. Some form of feedback will be provided. These formative opportunities and how feedback will be delivered will be explained to students at the start of the module and on module spaces.

Where assessed group work is undertaken, students will be expected, through the production of meeting notes and action plans, to demonstrate that they have contributed equally to the task. This element of personal contribution will determine the individual's overall module assessment. i.e. not all students within a group should expect the same mark.

Assessment Methods

All assessment is underpinned by ALF and students will get the opportunity to demonstrate their academic skills in a variety of methods, with flexibility and accessibility being key factors. Assessments will be written and formed in the context of future potential employment, with technical and communication skills in mind.

Formal Written Examinations

These have been defined as being at a maximum length of 3 hours for a module which has no assignment element. The examinations are formally defined and centrally conducted via Glyndŵr University's Assessment Office.

Coursework

This is a single task given to the student in the form of a 'brief' defining the assignment requirements at or near the beginning of the module. This may require the student to carry out investigations and literature searches in their own time and under their own initiative or it may require independent problem solving based on work covered in the lectures/tutorials. The work is normally required in the form of a formal report submitted by a given deadline. Sometimes a presentation, either individually or as a group forms part of the assessment.

Portfolio

This is a term referring to a collection of small, and perhaps diverse, exercises whose individual marks are brought together in a single folder to form a single in-course mark. Examples are where a series of laboratory exercises form part of the module. Feedback is given after each exercise (called formative assessment) so that a student is aware of progress made on an on-going basis.

Continuous Assessment

Some modules use continuous assessment whereby a set of progressive exercises are used to build up to the achievement of a major task. Each exercise is given a mark (called summative assessment) and feedback given, usually during class, in order to help with the next stage. The final mark is a combination of these marks. It is also the preferred method of assessment for the project, as the student project develops there are interim points for assessment which are inclusive of VLE quizzes, presentations, logbooks, and staged formal reports. The feedback to the student is thus also continuous and assists the students to achieve their potential.

Case Study

For some modules, a case study might be the most appropriate form of assessment whereby the student would investigate a particular scenario, software programme or an instrumentation system. They would analyse the 'subject' and convey their critical opinions; this could be verbally (oral presentation) or a short report. Frequently the student is given three or four scenarios to consider simultaneously, thereby enabling comparison of advantages and disadvantages.

Plagiarism

Where practicable, Turnitin will be used a tool to support students to develop their academic writing style as well as to detect plagiarism or collaboration.

Feedback to students

Formative assessment is essential to learning in its aim is to give appropriate and timely feedback to students on their learning, and to help them to improve their future work.

Feedback, both formal and informal is given to students throughout the programme. Feedback may be verbal, given during tutorials or lab exercises, where both student and lecturer can identify problems and steps can be taken to improve future work. Feedback is presented as part of a continuous assessment plan, such as the development of Journals or Learning Logs; this may be verbal or written feedback, or it may be formal written feedback, as in the case of assignment marking with comments.

It should be noted that much of the feedback, not only identifies problems along with suitable guidance, but also highlights the student's achievements. This approach usually works better than simply "must try harder."

In some cases, 'progressive feedback' is the most suitable approach, particularly when there are many problems with an individual student's work. i.e. do not try to mend everything all at once, as this can lead to the student becoming demoralised, but rather work on the most important aspects first, whilst introducing other improvements later.

Project work

The unique nature of part time industrial programmes affords an opportunity to get employers involved with assessment where appropriate and applicable. Employers will be invited to become involved with the scope and nature of any project work, which will directly affect project outcomes and their assessment.

The following diagram provides an overview of module assessments and indicative submission dates.

Module code & title	Assessment type and weighting	Assessment loading	Indicative submission date
ENG495 Analytical Engineering Techniques	50% Coursework 50% Exam	2500 Words 2Hr.	Wk. 6, TRI 1 Wk. 12, TRI 1
ENG497 Electrical Engineering	50% Portfolio 50% Exam	2500 Words 2Hr.	Wk. 7, TRI 1 Wk. 12, TRI
ENG499 Mechanical Engineering	50% Portfolio 50% Exam	2500 Words 2Hr.	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG496 Design & CAD	50% Coursework 50% Portfolio	2500 Words 1500 Words	Wk. 7, TRI 2 Wk. 12, TRI 2
ENG4A1 Engineering Management	50% Report 50% Portfolio	2500 Words 2500 Words	Wk. 6, TRI 3 Wk. 12, TRI 3
ENG4A2 Work Based Investigation and Learning	25% Report 75% Portfolio	1200 3800	Wk. 10, TRI 1 Wk. 8, TRI 3
ENG5AG Computer Aided Engineering	50% In-class Test (MCQ) 50% Assignment	2Hr. 2500 Words	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG5AA Analytical Control Techniques	50% Coursework 50% Exam	2500 Words 2Hr.	Wk. 6, TRI 1 Wk. 12, TRI 1
ENG5AJ Modern Manufacture, Sustainability & Industry 4.0	50% Report 50% Case Study	2500 Words 2500 Words	Wk. 6, TRI 3 Wk. 10, TRI 3
ENG5A1 Materials Engineering	50% Assignment 50% Exam	2500 Words 2Hr.	Wk. 6, TRI 1 Wk. 12, TRI 1
ENG5AC Industrial Automation & PLCs	100% Portfolio	3500 Words	Wk. 12, TRI 2
ENG5AE Instrumentation & Condition Monitoring	50% Case Study 50% Portfolio	2500 Words 2500 Words	Wk. 6, TRI 1 Wk. 12, TRI 1
ENG5AD Industrial Project	10% Presentation	15 min	Wk. 10, TRI 3

	90% Report	5000 Words	Wk. 11, TRI 3
ENG5AG Mechanical Systems Design	50% Case Study 50% Portfolio	2000 Words 2000 Words	Wk. 8, TRI 2 Wk. 12, TRI 2
ENG5AH Mechatronics Application & Manufacturing Systems	50% Assignment 50% Assignment	2500 Words 2500 Words	Wk. 8, TRI 2 Wk. 12, TRI 2
ENG5AK Power, Distribution & System Design	50% Exam 50% Portfolio	2Hr. 2500 Words	Wk. 8, TRI 2 Wk. 12, TRI 2
ENG6AE Managing Workforce, Engagement & Commitment	60% Portfolio 40% Group Project	4000 Words 2000 Words	Wk. 6, TRI 1 Wk. 12, TRI 1
ENG6AF Product Design	100% Portfolio	4000 Words	Wk. 11, TRI 2
ENG6AC Machine & Production Systems	50% Exam 50% Case Study	3 Hrs 2500 Words	Wk. 12, TRI 2 Wk. 6, TRI 2
ENG6AB Industrial Communication Systems	50% Assignment 50% Exam	2500 Words 3Hr.	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG6A5 Mechanical Engineering Modelling & Simulation	100% Portfolio	4000 Words	Wk. 12, TRI 2
ENG6A6 Electrical and Electronic Engineering Modelling & Simulation	100% Portfolio	4000 Words	Wk. 12, TRI 2
ENG6AD Maintenance & Safety Systems	100% Portfolio	4000 Words	Wk. 12, TRI 1
ENG6AG Project	80% Report 20% Presentation	10,000 Words 10 min	Wk. 10, TRI 3 Wk. 10, TRI 3
ENG6A3 Mechatronic Applications	80% Portfolio 20% Presentation	3,500 Words 15 Min	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG6A1 Continuous Improvement and Lean	50% Exam 50% Coursework	2 hours 2000 words	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG6A8 Professional Engineering	50% Group Project 50% Portfolio	2000 Words 2000 Words	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG60D Electronic Design and Testing	100% Exam	2 hrs	Wk. 6, TRI 2 Wk. 12, TRI 2
ENG6B9 Power Electronics and Electrical Machines	50% Portfolio 50% Examination	2500 Words 2 hrs	Wk. 6, TRI 2 Wk. 12, TRI 2

15 Assessment and award regulations

Derogations

A derogation from academic regulations has been approved for these programmes which means that whilst the pass mark is 40% overall, each element of assessment (where there is more than one assessment) requires a minimum mark of 30%.

External Examiners should review and approve all coursework assignments and examination papers which contribute to the overall degree classification and which contribute more than 30% to the overall module mark.

Failure may be compensated at the time of attempted level completion, up to a maximum of 30 credits across all levels of the programme. Major individual and group-based project modules must not be compensated.

Non-Credit Bearing assessment
None

Borderline Classifications (Undergraduate programmes)
In considering borderline cases the Assessment Board shall raise the classification to the next level if all of the following criteria are met:

- At least 50% of the credits at level 6 fall within the higher classification.
- All level 6 modules must have been passed at the first attempt.
- The mark achieved for the *Project* module is within the higher classification.

16 Accreditation

N/A

17 Quality Management

All provision is expected to comply with the University processes for quality assurance, the QAA Quality Code and any specific PSRB requirements to ensure the quality of the learning and teaching on the programme. The University uses the following mechanisms to help evaluate, enhance and review programmes delivery;

Student Evaluation of Module Questionnaires (SEMs)
Student Voice Forum
Individual student feedback
Student representatives
Annual Monitoring reports
Periodic review and re-validation process
External Examiner reports
PSRB requirements and accreditation activities
National Student Survey (NSS)

The Programme Leader will take overall responsibility for quality assurance and enhancement in line with the expectations detailed within the University's Programme Leaders Handbook.

Each module will be assigned to a named module leader who will take responsibility for the delivery of the learning, teaching and assessment of the module. In keeping with the policies and procedures agreed by the University, the key mechanism for quality control and enhancement at programme level will be the processes and procedures associated with the annual monitoring cycle which is formalised through the production of the Annual Monitoring Report (AMR). The AMR evaluates the programme delivery drawing on feedback from students, professional bodies, external examiners and employers. The outcomes of the AMR are scrutinised and agreed at Programme Level with subsequent monitoring and review being formalised though the Faculty Board and the Learning and Teaching Quality Committee. Specific methods used for consulting students include the completion of Module Evaluation Questionnaires, Student Voice Forum and end of year group feedback sessions.

The Programme team meet monthly in order to monitor programme performance. Issues discussed include recruitment and retention, student feedback, assessment calendars, approaches to teaching and learning, coordination of site visits and guest lecture plans. Peer observation is undertaken; this includes classroom-based observation as well as peer review of marking, assessment and feedback.

Whilst the Programme Leader is responsible for day-to-day management of the programme, Personal Tutors will ensure the welfare and development of each student on the programme throughout their period of study.

Feedback from students

Student Representatives will be elected from the student group and will attend the SVF meetings to provide a student input. The representative will also be able to bring urgent matters to the Programme Leader's attention by a direct approach.

Open Door Policy

Staff operate an open-door policy, whereby students may 'pop in' to have a chat about anything they may be concerned about or need some help with. The feedback from the students indicate that this is the most useful method of communicating and usually resolves any issues immediately.

Whilst the Programme Leader is responsible for day-to-day management of the programme, Personal Tutors will ensure the welfare and development of each student on the programme throughout their period of study.

18 Support for Students

The University has a range of departments that offer support for students such as:

- Library & IT Resources
- Inclusion Services
- Careers Service
- Chaplaincy
- Counselling & Wellbeing
- Student Funding and Welfare
- Student Administration

Please access the Glyndŵr website at www.glyndwr.ac.uk to find out more about the Departments

Glyndŵr Student Union offers support for students, please access their website at to find out more. https://www.wrexhamglyndwrsu.org.uk/

All students at Wrexham Glyndŵr University are allocated a Personal Tutor whose main responsibility is to act as the first point of contact for their personal students and to provide pastoral and academic support throughout their studies at the University.

On the individual level, students will be supported in their learning in the following ways:

- Students will be provided with a programme handbook which details their programme of study and signposts them to University level support mechanisms, policies and regulations.
- Student academic support needs will be met in the following ways.
    i. Individual tutorials with academic tutors to identify individual learning needs and aspirations which will then be monitored throughout the programme.
    ii. Following confirmed assessment of learning needs, the team will make reasonable adjustments to assessments in order to reflect the needs of students with support needs.

iii. Tutors will use the VLE as a repository for course material and are actively engaging in developing opportunities to use this to provide feedback to students, promote online discussion and promote a VLE academic community.

iv. Pastoral support will be provided by a named personal tutor who will remain with them for the duration of their study. Should a student wish to change their personal tutor during their period of study this can be accommodated.

v. The University study skills tutor will be available to support and guide students for on-going individual and/or small group support on a self-referral basis throughout the year including the summer period.

vi. Induction programmes will include Study Skills and IT and the VLE.

vii. Each programme of study will have arrangements in place for a programme student representative. This representative will be invited to attend SVF meetings and where appropriate, relevant Institutional meetings.

viii. Each Student is supported by the programme leader and their employer to identify relevant and appropriate projects as well as ensure that both the employer and academic needs are met.

19 Equality and Diversity

Glyndŵr University is committed to providing access to all students and promotes equal opportunities in compliance with the Equality Act 2010 legislation. This programme complies fully with the University's Equality and Diversity Policy, ensuring that everyone who has the potential to achieve in higher education is given the chance to do so. Please click on the following link for more information
https://www.glyndwr.ac.uk/en/AboutGlyndwrUniversity/EqualityandDiversity/