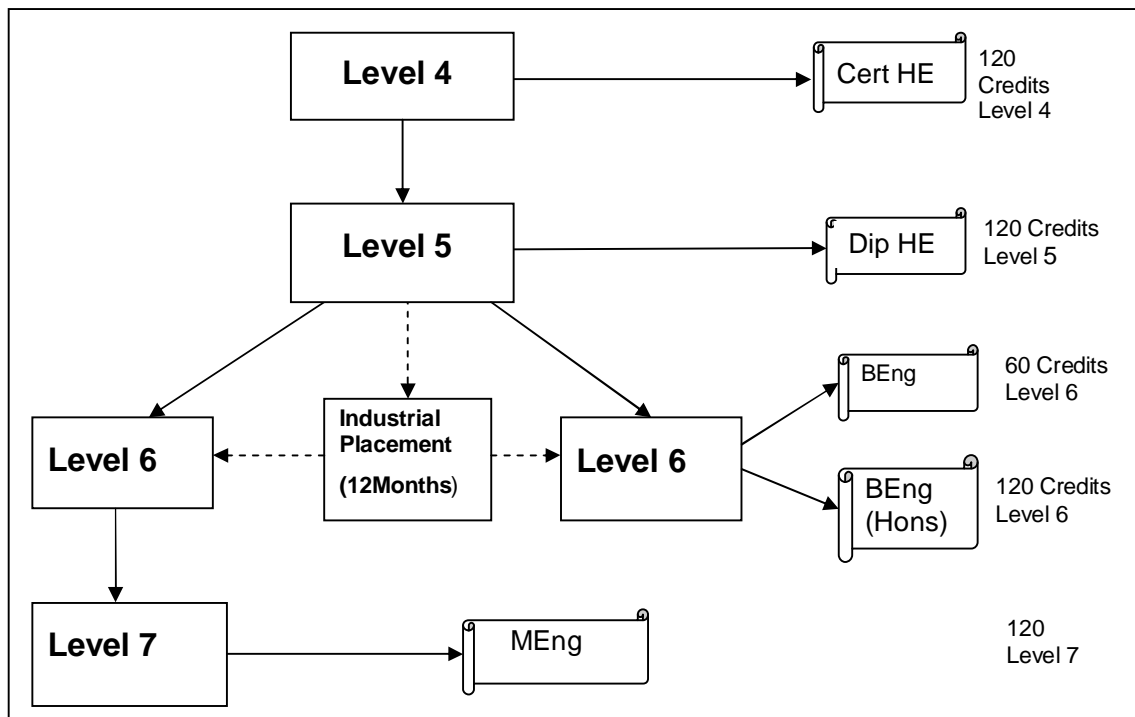


Faculty of Computing Engineering and Technology

Engineering Programme

AWARDS HANDBOOK 2011-12

BEng(Hons)/MEng Mechanical Engineering
BEng(Hons)/MEng Electronic Engineering
BEng(Hons)/MEng Mechatronics
BEng(Hons)/MEng Electrical Engineering
BEng(Hons) Network Engineering
BEng(Hons)/MEng Automotive Engineering
BEng(Hons)/MEng Automotive Electronics
BEng(Hons) Product Design Engineering
BEng(Hons) Robotics Engineering
BEng(Hons)/MEng Telecommunication Engineering



Contents

<u>Section</u>	<u>Page No.</u>
1. Welcome to the Faculty	3
2. Welcome to your Award	4
3. Useful Contacts and Resources	5
3.1 Academic Contacts	5
3.2 Administrative Contacts	6
3.3 Useful Internet Resources	6
3.4 The Faculty Office	6
3.5 The Faculty Management Team	7
4. What are the aims and outcomes of the awards?	8
4.1 Aims of the awards	8
4.2 Learning outcomes of the awards	12
5. How is the award structured?	23
6. How will I learn on this award?	25
6.1 Learning Opportunities	25
6.2 Assessment Methods	26
7. How do I hand in assignments?	28
8. Feedback on Your Work	29
9. Personal Development Planning and Personal Tutoring	30
10. Accreditation of Prior Learning	31
11. Award Regulations	32
12. Award Specific Regulations	33
13. Placements	34
13.1 Introduction	34
13.2 Supervision of Industrial Placements	34
13.3 Assessment of Supervised Work Experience	34
13.4 The Faculty Placements Office	34
14. Level 6 and Level 7 projects	35
15. Professional Body Recognition	36
16. Academic Dishonesty and Plagiarism	37
Appendix A: Glossary of Terms	38
Appendix B: Structure of Awards and Mapping to University Learning Outcome and Engineering Benchmark Statements	39

1. Welcome to the Faculty

Welcome to the Faculty of Computing, Engineering and Technology at Staffordshire University. You are now a student in one of the largest such faculties in UK universities, and we are delighted that you are one of our students. The faculty is host to one of the first UK university computing provisions, to technology programmes that are amongst the leaders in the UK, and to an engineering scheme founded on large engineering employer needs. Your course of study will therefore be up to date and appropriate, will be serviced by well qualified staff, and will also be geared to preparing you for life and employment after university. Staffordshire University aims to 'create the difference' by helping all of its students to achieve what they want to in life.

As one of our students we expect you to work hard, to set high standards for yourself. To help you to succeed you will have access to excellent staff and facilities, and also to a range of student support services to help deal with your particular needs. Of course, in addition the academic, administration and technical staff that you come across as part of your studies will also be delighted to advise and support you. Your part is to take your study seriously, to set appropriate time aside for your study, and to make full use of lectures and other scheduled class contact. It is important to us that you are successful and that you go on to be a good ambassador for the university.

You are now part of the Faculty 'family', and we look forward to working with you to help you to 'create the difference'!

Very best wishes,

Professor Michael J Goodwin
Dean
Faculty of Computing, Engineering and Technology

2. Welcome to your Award

Welcome to your chosen BEng(Hons)/MEng engineering award, one of a programme of exciting, forward-looking engineering awards in the Faculty of Computing, Engineering and Technology. The Faculty comprises around 3000 students and 200 staff engaged in a wide range of undergraduate and postgraduate awards across our Stafford, Stoke and Lichfield campuses. Most, if not all, of your studies will be based at our Stafford campus where you will be able to take advantage of excellent facilities, experienced and approachable staff and a dynamic learning community, becoming part of a long tradition of Engineering awards designed to meet the needs of the worldwide engineering community.

We are committed to creating a productive, efficient and friendly atmosphere within the Faculty and welcome your participation in this.

We all hope that you will find your time with us to be enjoyable and productive. An education in any area is a challenging prospect, but developing your creativity, skills and resourcefulness in such a fast changing discipline as Engineering in the 21st century has many benefits, in vocational practice or many other future careers. We look forward to playing our part in your formation as a professional engineer.

Professor Moofik al-Tai
Award Programme Manager- Engineering Programme.

3. Useful Contacts and Resources

3.1 Academic Contacts

Award Programme Manager: Professor Moofik Al-Tai C210 m.al-tai@staffs.ac.uk

Award Tutors:

BEng (Hons)/MEng Mechanical Eng	Neil Packer	C205	n.packer@staffs.ac.uk
BEng (Hons)/MEng Electronic Eng	Ian Taylor	C201	i.taylor@staffs.ac.uk
BEng (Hons)/MEng Mechatronics	Sam Wane	D107	s.o.wane@staffs.ac.uk
BEng (Hons)/MEng Electrical Eng	Chris Gould	C205	c.a.gould@staffs.ac.uk
BEng (Hons) Network Eng	Alison Griffiths	C203	a.l.griffiths@staffs.ac.uk
BEng(Hons)/MEng Automotive Eng	Peter Hooper	C211	p.r.hooper@staffs.ac.uk
BEng(Hons)/MEng Automotive Electronics	Peter Hooper	C211	p.r.hooper@staffs.ac.uk
BEng (Hons) Product Design Eng	Chris Wayman	E17	c.j.wayman@staffs.ac.uk
BEng (Hons) Robotics Eng	Sam Wane	D107	s.o.wane@staffs.ac.uk
BEng (Hons)/MEng Telecommunication Eng	Alison Griffiths	C203	a.l.griffiths@staffs.ac.uk

Technical Skill Specialists:

Electronic and Power:	David Martin	D10	d.martin@staffs.ac.uk
Electronics and Telecommunications:	Paul Bentley	D10	p.bentley@staffs.ac.uk
Mechanical:	Abbas Daragheh	F12	a.daragheh@staffs.ac.uk
Fluids:	Ian Pinks	F12	i.m.pinks@staffs.ac.uk
Manufacturing:	Haydn Richardson	F4	h.richardson@staffs.ac.uk
CNC and CAD/CAM:	Neil Harvey	D12	n.a.harvey@staffs.ac.uk
Design Technology:	Mick Britton	G1	m.t.britton@staffs.ac.uk

Final Year Project Co-ordinator: Robert Round K223 r.round@staffs.ac.uk

A full list of staff contacts can be found at:

http://www.staffs.ac.uk/faculties/comp_eng_tech/current_students_and_staff/fcetwhoswho.jsp

3.2 Administrative Contacts

Award Support for Engineering: Kathryn Shenton K266 01785 353436 k.j.shenton@staffs.ac.uk
Zoe Congreave K266 01785 353436 z.m.congreave@staffs.ac.uk

Student Guidance Advisors: Janice Kalisz K232 01785 353345 j.c.kalisz@staffs.ac.uk

3.3 Useful Internet Resources

The Faculty website can be found at: http://www.staffs.ac.uk/faculties/comp_eng_tech/ . Here you will find details of timetables, contacts and news regarding the Faculty.

The Faculty uses Blackboard as an online learning environment, and information on modules on which you are enrolled can be accessed from this. Note: you can only get access to those modules that you are studying – if you cannot gain access to material, it may be that you are not correctly enrolled on the module – make sure you let your module tutor or award administrator know.

Blackboard can be found at: <http://blackboard.staffs.ac.uk>

The library can be accessed from: <http://www.staffs.ac.uk/uniservices/infoservices/library/>

3.4 The Faculty Office

Faculty Reception is on the 2nd Floor of the Octagon, Room K266 and first floor of Brindley building in Stoke (B161) and should be your first port of call if you have any queries or problems relating to the Faculty or if you are unsure of how to deal with other queries. The contact details of the University Services for students are listed in Section 3. The Faculty Office comprises a team of staff who are responsible for managing the wide range of activities and processes necessary to support students and academic colleagues within the Faculty. You'll get to know some of the staff quite well as it is here you'll hand in your module registration forms and assignments.

All enquiries should be made via the Reception desk in the first instance. The Receptionist will assess whether they are able to help you immediately or whether you need to talk to another member of the team. Hence they may call on colleagues who can advise on queries concerning:

All enquiries should be made via the Reception desk in the first instance. The Receptionist will assess whether they are able to help you immediately or whether you need to talk to another member of the team. Hence they may call on colleagues who can advise on queries concerning:

- Modules
- University regulations
- Your credit and progression status
- Referral opportunities
- Claims for extenuating circumstances you may have made in relation to assessment
- Information about your study here: award and module records, local and home address information, etc
- Any changes to your award or programme of study
- Registration events for level 5 / year 2 and level 6 / year 3 study

It is important that you get to know staff in the Faculty Office as they are responsible for keeping all the information on your period of study accurate and up-to-date.

In particular, make sure that you:-

- Check your e-mail account regularly for any information or queries sent to you by Faculty/School administrators or by academic staff. This means your university e-mail account – not your personal one!
- Always let the Faculty Office know of any changes in your contact details. This includes mobile numbers as well as home and term addresses and any landline telephone numbers. It really is important that we know how to get in touch with you.
- Always ensure that the Faculty Office is aware of any changes you make to your academic profile (modules/award) by completing the appropriate module amendment/award transfer forms.

Opening Times

Monday - Thursday	8.45 am – 5.00 pm
Friday only	8.45 am – 4.00 pm

Please feel free to call into the Faculty Office between these times. All queries, no matter how small or large, are welcome as they ensure that your records are always correct – and this does prevent delays or difficulties in confirming results at the end of each Academic Year. And if you have a problem which the Faculty/School Office can't help you with, it usually knows somebody who can.

3.5 The Faculty Management Team

The Dean of Faculty

At the head of the Faculty is the Dean, Mike Goodwin (K260 Octagon, 01785 353295, E-mail m.j.goodwin@staffs.ac.uk)

In this role, Mike has responsibility for the strategic development, operation and management of the faculty. Should you need to speak with him, you should normally make an appointment with his secretary, Heather West. Heather can be found in Room K260, Octagon Building and her telephone number is 01782 353295 (E-mail h.n.west@staffs.ac.uk)

Faculty Academic Directors

Mike Goodwin is supported in running the faculty by 2 Faculty Academic Directors:

Dr Mike Hamlyn, Teaching and Learning (C236, Beacon, 01785 353220, m.g.hamlyn@staffs.ac.uk)

Professor Adrian Low, Research and Enterprise (K252 Octagon, 01785 353307. a.a.low@staffs.ac.uk),

4. What are the aims and learning outcomes of the awards?

4.1 Aims of the awards

The aim of the awards is to provide students with undergraduate education in the fields of engineering and engineering systems. This will contribute to the student's formation as a professional engineer and be the first step in achieving Chartered Engineer status. The awards have been developed to produce graduates who are able to deal with the variety of challenges to be found in scientific and engineering environments.

The awards within the programme aim to offer an enjoyable intellectually demanding and stimulating programme of study and to create graduates who are able to:

- undertake design work
- use mathematical and computer models
- use business and management principles
- solve engineering problems
- undertake practical work
- demonstrate awareness of leading edge knowledge
- demonstrate a life-long commitment to learning and further study as part of professional development
- show knowledge and understanding of commercial and economic context of engineering
- use management techniques to achieve engineering objectives within that context;
- understand and embody in their work the requirement for engineering activities to promote sustainable development

As well as these generic aims of the programme, individual awards have the following aims:

BEng(Hons)/MEng Mechanical Engineering

There is a demand within the engineering industry for mechanical engineers who are able to practice as designers within, or as analysts and operators of, engineering systems. These awards aim to produce graduates who can design products or processes, and who understand the place of design within an engineering system. By emphasising systems design principles and transferable core skills the awards also equip the engineers of the future with the capability to pursue the independent learning and professional development that is expected from a professional engineer. Graduates will be very well equipped to deal with the variety of design challenges to be found in a wide range of scientific and engineering environments.

Mechanical engineers are required to understand and use scientific and technical knowledge, should be able to model engineering systems and predict system behaviour, and should understand manufacturing processes and how they influence design. They are also required to understand business management principles, and the role of the mechanical engineer operating within a system to providing a product or service that meets a demand. The awards focus on key engineering skills and illustrate, through the use of examples and problem-based learning, their application to relevant areas such as product design, process design and system analysis and modelling. A number of key technical skills are developed as threads throughout the three years of the award in order to ensure the correct depth of knowledge within these areas.

The Mechanical Engineering award aims to provide students with deeper knowledge and improved skills in solving problems in a systems design context. Students following the Mechanical Engineering award gain deeper knowledge and improved skills in applying engineering principles to the solution of problems in the wider engineering context

Graduates from these awards are likely to find employment in areas of engineering such as heavy plant design, white goods engineering, control engineering, mechatronics design, manufacturing system management, consulting, and other areas. However it is envisaged that graduates from the award will be sought after as employees not only within the engineering sector, but also in the much wider commercial and IT sectors where fundamental understanding and problem solving skills are required.

Students on the MEng route will develop knowledge and skills in professional research methods and further develop their project management skills in team work environment.

BEng(Hons)/MEng Electronic Engineering

There is a demand within the engineering industry for systems level designers with a good understanding of hardware and software issues and the underlying principles of their operation. This award aims to produce graduates who are equipped to deal with the complex and frequently changing world of modern electronic systems design. By emphasising systems design principles and transferable core skills the awards also equip the engineers of the future with the capability to pursue the independent learning and professional development that is expected from a professional engineer. Graduates will be very well equipped to deal with the variety of design challenges to be found in a wide range of scientific and engineering environments.

Modern systems designers are required to have an understanding of areas such as device selection and hardware/software trade-offs, cost, reliability analysis and design for manufacture. This requires a fundamental understanding of the operating principles of different types of systems in order to be able to make informed choices. The award focuses on key engineering skills and illustrate, through the use of examples and problem-based learning, their application to relevant areas such as hardware and software design, communication systems, networks, and computer architecture. A number of key technical skills are developed as threads throughout the BEng(Hons) and MEng awards in order to ensure the correct depth of knowledge within these areas.

Graduates from this award are likely to find employment in areas of engineering such as communications, control system design, multimedia, embedded systems design, IT systems design, mechatronics, consulting, and other areas. However it is envisaged that graduates from the award will be sought after as employees not only within the engineering sector, but also in the much wider commercial and IT sectors where fundamental understanding and problem solving skills are required.

Students on the MEng route will develop knowledge and skills in professional research methods and further develop their project management skills in team work environment.

BEng(Hons)/MEng Mechatronics

This award is offered in response to the demand for engineers capable of contributing to the design, operation and analysis of automated environments in which mechanical components are controlled by electronic systems. The award aims to produce graduates who are able to design and analyse the integration of electronic and mechanical components and systems and who understand the systems environment in which engineering businesses operate. The award also develops design skills and transferable skills with a view to equip graduates to pursue independent learning and continuing professional development.

Mechatronics engineers are required to be able to devise and implement supporting systems for measurement, data acquisition and control in complex systems. They must be equally confident when faced with problems involving mechanical design and stress or vibration analysis as when interfacing computers and devising logging systems and control algorithms and circuits. Mechatronics engineers are required to understand business management principles, and the role of the engineer operating within a system to provide a product or service to meet a demand. The awards focus on key engineering skills and illustrates, through the use of examples and problem-based learning, their application to relevant areas such as product design, control system design and system analysis and modelling. A number of key technical skills are developed as threads throughout the three years of the award in order to ensure the correct depth of knowledge within these areas.

Graduates are likely to find employment in engineering areas such as robotics, white goods engineering, control engineering, mechatronic system design, manufacturing system management, consulting, and other areas. However it is envisaged that graduates from the award will be sought after as employees not only within the engineering sector, but also in the much wider commercial and IT sectors where fundamental understanding and problem solving skills are required.

Students on the MEng route will develop knowledge and skills in professional research methods and further develop their project management skills in team work environment.

BEng(Hons)/MEng Electrical Engineering

Electrical Engineering offers a stimulating and rewarding first degree, with opportunities for employment in a wide range of industry sectors. The electricity industry covers the activities associated with the generation, transmission, distribution and supply of electricity. Graduates find employment in electrical power generation, transmission and distribution; the renewable energy sector; rail and road transport networks; industrial manufacturing; construction and building services; specialist engineering and consultancy; petrochemical; telecommunications; and defence related industries including the Ministry of Defence.

Higher level engineering and professional skills are increasingly being required by the electrical engineering sector, and offer an opportunity for graduate engineers to become involved in large scale implementation and adoption of new technologies. The existing electrical supply network is being modernised, and electrical power engineers are needed to meet the challenges placed on the distribution systems by the growth of smaller generation and renewable technologies. The electrical industry is one of the UK's largest industrial sectors and plays a key role in the UK's economy. The industry is vital for modern day living, and the security of supply of the UK's electricity network has never been more important in order to support our requirements today and into the future.

The BEng(Hons) Electrical Engineering Award follows a common first year with the University's other Engineering Award Programmes, and provides the fundamental electrical, electronic, mechanical, mathematical, communication and commercial skills required by employers in order for graduates to succeed in their future careers. Specialised electrical engineering and power electronic modules are introduced in year 2 and year 3 of the course, with an optional industrial placement offered between years 2 and 3, in order to provide additional experience and further enhance graduate employability. A major individual electrical engineering project forms a key element of the final year, and further study to MEng level is available. Graduates may continue their studies in Electrical Engineering with a taught postgraduate MSc degree, or move into postgraduate research studying an MPhil or PhD award.

The BEng(Hons)/MEng Electrical Engineering awards at Staffordshire University are core to the engineering award programme, and have been successfully delivered by the University for many years, remaining an important and strategic subject area for teaching, research and enterprise activities. The University has strong links with the Alstom Company, who specialises in the transmission and distribution of energy; develop medium and high voltage substations and technologies in order to manage worldwide power grids. The BEng(Hons)/MEng Electrical Engineering Awards at the University were developed in conjunction with Alstom, and reflect current industrial requirements. The University also maintains links with JCB and Siemens.

The BEng(Hons) Electrical Engineering Award is accredited by the Institute of Engineering and Technology (IET), and provides the education foundation necessary in order to apply for professional registration with the British Engineering Council.

BEng(Hons) Network Engineering

There is an emerging breed of Engineer who combines aspects of electronic engineering with IT, hardware with software, and commands the distribution of electronic information with which organisations are increasingly dependent. They use this technology in most areas such as production process, administration and financial control.

Making informed decisions and maintaining communication around an organisation depends on the flow of information, and so the computer network is a central and key resource. Graduates from this award will play a major role in meeting the needs of the wide range of industries using new technology.

The roles of the network engineer are constantly changing as new systems emerge. This award covers the knowledge and skills that network designers, installers and managers of the future will need. Networking is taught in a new laboratory equipped with the latest networking equipment from CISCO and other leading manufacturers and the award also includes all the material required to enable graduates to obtain the Industrially-recognised CISCO Certified Network Associate (CCNA). The Faculty of Computing Engineering & Technology is a CISCO Network Academy.

BEng(Hons)/MEng Automotive Engineering

Staffordshire University has over 40 years experience of delivering engineering degrees. Using this and extensive collaborations with the automotive industry this award focuses on the mechanical engineering and design aspects of the automotive field. Students study subjects such as vehicle dynamics, aerodynamics and engine design as well as gaining a solid underpinning in Mechanical engineering principles.

During the first year students apply mechanical engineering principles to automotive applications. You will develop skills during this year that will allow you to analyse complex automotive systems in the second year. At level 6 following a possible sandwich year you will complete a major project along with specialist modules dealing with Engine Design, Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA).

Opportunities exist for our graduates to work with manufacturers, Tier 1 and Tier 2 suppliers and specialist enterprises in the automotive and motorsport sectors. Previous graduates from Staffordshire now work for companies such as Ford, Jaguar Land Rover and Bentley.

BEng(Hons)/MEng Automotive Electronics

The automobile is the most complex consumer product in the world. The growth of electronic systems has major implications for vehicle engineering. Today's high-end vehicles contain more than 70 microprocessors controlling engine, chassis, safety and driver systems; with projected growth in the associated on board software content. The market for graduates is therefore growing to meet this demand.

This award allows students to pursue their interest in vehicle electronic control systems and related technologies. The analysis of these systems will enhance the understanding and subsequently the employability of our graduates.

The award builds on our highly successful engineering and computing programmes and uses a proportion of the modules that are taught within these disciplines. In addition to these subjects, the award contains specific modules which investigate vehicle and vehicle systems design and analysis. Practical modules throughout the award enhance the student experience of automotive systems analysis.

This award will open up a vast choice of future careers for graduates. The award has been developed with assistance from first tier suppliers, motorsport engineers and manufacturers. Opportunities exist for our graduates to work within these fields.

BEng(Hons) Product Design Engineering

More than any other engineering title, Product Design Engineering aims to develop graduates with creativity explicitly combined with technical skills and analysis. Design technologies such as Computer Aided Design, Digital Rendering and Rapid Prototyping are combined with engineering theory and analysis to enable the graduate to design and develop products which may be for reliability or safety critical applications.

The UK is one of the world leaders in innovating new products and with this qualification a career in Product Design will have the best possible start. This award and its predecessors have a proven track record of producing students who are immediately employable in the design industry, consultancies or train further for an education career.

BEng(Hons) Robotics Engineering

This award is aimed towards students who want to learn how to program, understand, design and build robots to a high level of sophistication where they will be ready to be of use in areas such as: autonomous agents in domestic, utility and hospital environments, operation in hostile surroundings (underwater, underground, offshore, off planet), home automation and remote monitoring, the production industries vehicles, food and pharmaceuticals.

The award exposes the student to three areas of robotics early on: high-level programmer and AI, embedded systems design and PLC factory automation. As well as the ability to program, design and build, a graduate from this degree will, subject to options chosen, have expertise in image processing, advanced artificial intelligence, and advanced real-time embedded systems and most importantly, the ability to develop robotic solutions.

BEng(Hons)/MEng Telecommunication Engineering

Telecommunication Engineering encompasses the design and optimisation of communication systems for voice, data and multimedia applications. This award will provide graduates with knowledge and skills of telecommunication systems, developed from a broad base of mathematical modelling, electronic systems and computer networking. More specifically this will include areas such as the fundamentals of digital communication, electromagnetic waves and propagation within a telecommunication environment, LANs and WANs, data communication systems for wired (co-axial, optical etc.) and wireless (cellular, satellite etc.) environments, mobile computing, digital signal processing etc.

Graduates will have a knowledge and hands-on experience of wired and wireless telecommunication infrastructure which will enable them to be employed within the worldwide telecommunication industry or proceed to further study and research. Graduates will be able to design and create algorithms to optimise existing and emerging telecommunication systems.

Students on the MEng route, will develop knowledge and skills in professional research methods and further develop their project management skills in team work environment.

4.2 Learning outcomes of the awards

Tables 1- 10 describe how the framework and these outcomes are interpreted at each level in each of the Engineering Programme. Students achieving a non-Honours degree by completion of Level 5 + 60credits at Level 6 will achieve all Level 5 outcomes plus a range of 6 outcomes associated with modules taken and passed.

Table 1: Level Learning Outcomes: BEng(Hons)/MEng Mechanical Engineering

On completion of each level of study of BEng(Hons)/MEng Mechanical Engineering, the student will be able to:

learning outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to mechanical engineering	demonstrate a systematic understanding of key areas of mechanical engineering and acquisition of coherent and detailed knowledge from its forefront of the discipline	Demonstrate a systematic understanding of knowledge which is at the forefront of mechanical engineering
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering	Demonstrate knowledge of the main methods of inquiry in problem solving in mechanical engineering	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to mechanical engineering	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields	Use a range of established techniques to initiate and undertake critical analysis of information in fields of mechanical engineering such as mechanics, fluids, thermodynamics, control, design..	Describe and comment on current research and practice in mechanical engineering and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgements	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront of mechanical engineering
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.	Communicate their conclusions clearly to specialist and non-specialist audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problems in related fields. Use appropriate tools and undertake development tasks in a variety of mechanical engineering contexts.	Apply the methods and techniques learned to review, consolidate extend and develop mechanical engineering solutions.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the mechanical engineering body of knowledge.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.	Lead, manage and organise teams effectively.

Table 2: Level Learning Outcomes: BEng(Hons)/MEng Electronic Engineering

On completion of each level of study of BEng(Hons)/MEng Electronic Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to electronic engineering	demonstrate a systematic understanding of key areas of electronic engineering and acquisition of coherent and detailed knowledge from its forefront of the discipline	Demonstrate a systematic understanding of knowledge which is at the forefront of electronic engineering
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering	Demonstrate knowledge of the main methods of inquiry in problem solving in electronic engineering	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to electronic engineering	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields	Use a range of established techniques to initiate and undertake critical analysis of information in fields of electronic engineering such as analogue, digital, communications, real-time embedded systems.	Describe and comment on current research and practice in electronic engineering and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgements	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront of electronic engineering
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.	Communicate their conclusions clearly to specialist and non-specialist audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problems in related fields. Use appropriate tools and undertake development tasks in a variety electronic engineering contexts.	Apply the methods and techniques learned to review, consolidate extend and develop electronic engineering solutions.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the electronic engineering body of knowledge.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.	Lead, manage and organise teams effectively.

Table 3: Level Learning Outcomes: BEng(Hons)/MEng Mechatronics

On completion of each level of study of BEng(Hons)/MEng Mechatronics, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to mechatronics systems	demonstrate a systematic understanding of key areas of mechatronics and acquisition of coherent and detailed knowledge from its forefront of the discipline	Demonstrate a systematic understanding of knowledge which is at the forefront mechatronics
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering	Demonstrate knowledge of the main methods of inquiry in problem solving in mechatronics	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to mechatronics	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields	Use a range of established techniques to initiate and undertake critical analysis of information in fields such as automation, condition monitoring, control, robotics and wherever systems combine electronic and mechanical function	Describe and comment on current research and practice in mechatronics and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgements	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront mechatronics.
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.	Communicate their conclusions clearly to specialist and non-specialist audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problem in related fields. Use appropriate tools and undertake development tasks in a variety of contexts.	Apply the methods and techniques learned to review, consolidate extend and develop mechatronics solutions.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the body of mechatronics knowledge.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.	Lead, manage and organise teams effectively.

Table 4: Level Learning Outcomes: BEng(Hons)/MEng Electrical Engineering

On completion of each level of study of BEng(Hons)/MEng Electrical Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to electrical engineering	demonstrate a systematic understanding of key areas of electrical engineering and acquisition of coherent and detailed knowledge from its forefront of the discipline	Demonstrate a systematic understanding of knowledge which is at the forefront of electrical engineering
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering	Demonstrate knowledge of the main methods of inquiry in problem solving in electrical engineering	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to electrical engineering	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields	Use a range of established techniques to initiate and undertake critical analysis of information in fields of electrical engineering such as fields and energy conversion, electrical power, power transmission and electronics.	Describe and comment on current research and practice in electrical engineering and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgements	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront of electrical engineering
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.	Communicate their conclusions clearly to specialist and non-specialist audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problems in related fields. Use appropriate tools and undertake development tasks in a variety of electrical engineering contexts.	Apply the methods and techniques learned to review, consolidate extend and develop electrical engineering solutions.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the electrical engineering body of knowledge.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumptions of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.	Lead, manage and organise teams effectively.

Table 5: Level Learning Outcomes: BEng(Hons) Network Engineering

On completion of each level of study of BEng(Hons) Network Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to network engineering	demonstrate a systematic understanding of key areas of a specific engineering discipline and acquisition of coherent and detailed knowledge from its forefront of the discipline
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering	Demonstrate knowledge of the main methods of inquiry in problem solving in network engineering	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to network engineering
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields	Use a range of established techniques to initiate and undertake critical analysis of information in the fields of network architecture, hardware and software.	Describe and comment on current research and practice in network engineering and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgements
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problem in related fields. Use appropriate tools and undertake development tasks in a variety of contexts.	Apply the methods and techniques learned to review, consolidate extend and develop network engineering solutions.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.

Table 6: Level Learning Outcomes: BEng(Hons)/MEng Automotive Engineering

On completion of each level of study of BEng(Hons)/MEng Automotive Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge of the underlying concepts and principles of Automotive Engineering.	Demonstrate knowledge and critical understanding of the well-established concepts, principles and their development relating to Automotive Engineering systems.	Demonstrate a detailed, systematic and critical understanding of key aspects of Automotive Engineering hardware and systems including acquisition of coherent and detailed knowledge which is at, or informed by, the forefront of defined aspects of the technical area.	Demonstrate a systematic understanding of knowledge which is at the forefront of automotive engineering
Learning	Develop lines of argument and make sound judgements in accordance with basic theories and concepts of Automotive Engineering.	Understand the contextual limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate a coherent and critical understanding of the concepts, principles and theories that explicate the operation of Automotive Engineering systems, and to understand the limits, ambiguity and uncertainty of the associated knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate, and interpret qualitative and quantitative data.	Demonstrate knowledge of the main methods of enquiry in the study and development of Automotive Engineering systems and environments.	Make informed decisions in the selection of candidate solutions, approaches, tools, techniques and methods based upon rational criteria and evidence gathered as a result of a review of established subject knowledge, current research, direct investigation and analysis.	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret concepts and principles of Engineering in an Automotive context.	Use a range of established techniques to initiate and undertake critical analysis of information.	Analyse and describe underpinning theories, solutions, approaches, tools, techniques and methodologies related to Automotive Engineering technologies and to critically discuss and evaluate these to make judgements.	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront of automotive engineering
Problem solving	Evaluate the appropriateness of different approaches to solving Engineering problems in an Automotive context.	Evaluate critically the appropriateness of different approaches to solving Engineering problems in an Automotive context.	Develop Engineering based Automotive solutions to complex problems and apply sound judgement in determining their requirements and constraints, and to manage, plan and control in complex and unpredictable contexts, the processes, stages and decisions involved in the development of these solutions.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations.
Communication	Communicate the results of Automotive Engineering study/work accurately, reliably, and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms, to specialist and non-specialist audiences, and deploy key Automotive Engineering effectively.	Communicate effectively to different audiences using appropriate media, technology and techniques, complex information, ideas and discussion concerning problems, solution outcomes, solution development processes, results of research, investigation and rational justification.	Communicate their conclusions clearly to specialist and non-specialist audiences.
Application	Apply the basic principles and techniques required for the study and development of Automotive Engineering technologies and in doing so, understand the need to undertake further training and development of new skills within a defined discipline.	Apply underlying concepts and principles outside the context in which they were first studied to develop a range of Automotive Engineering solutions.	Effectively apply appropriate tools, techniques and methodologies and to adapt and extend existing technical solutions, approaches, tools, techniques and methodologies where necessary or appropriate using ideas and techniques, some of which are at the forefront of Automotive Engineering technologies and systems.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the automotive engineering body of knowledge.
Reflection	Demonstrate qualities and transferable skills necessary for employment and/or further study requiring the exercise of some personal responsibility.	Demonstrate qualities and transferable skills necessary for employment or further training including the development of existing skills, and acquisition of new competencies that will require the exercise of personal responsibility and will enable students to assume significance responsibility within organisations.	Manage their own learning and demonstrate an understanding of professional and personal responsibility and issues including the ethical, legal and social context in which technical solutions are developed and operated, and to manage their continuing professional development and lifelong learning for employment or further training of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working:	Demonstrate the ability to work effectively in teams	Demonstrate the ability to undertake different roles within teams	Manage and organise team working activities	Lead, manage and organise teams effectively.

Table 7: Level Learning Outcomes: BEng(Hons)/MEng Automotive Electronics

On completion of each level of study of BEng(Hons)/MEng Automotive Electronics, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge of the underlying concepts and principles of relevant Automotive electronic systems technology.	Demonstrate knowledge and critical understanding of the well-established concepts, principles and their development relating to Automotive electronic systems technology.	Demonstrate a detailed, systematic and critical understanding of key aspects of Automotive electronic electronics and their strategic use which is at, or informed by, the forefront of defined aspects of the discipline	Demonstrate a systematic understanding of knowledge which is at the forefront of automotive engineering
Learning	Develop lines of argument and make sound judgements in accordance with basic theories and concepts of Automotive electronic systems technologies.	Understand the contextual limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate a coherent and critical understanding of the concepts, principles and theories that explicate the business and commercial factors governing the design, development and operation of Automotive electronic systems, and to understand the limits, ambiguity and uncertainty of the associated knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate, and interpret qualitative and quantitative data.	Demonstrate knowledge of the main methods of enquiry in the study, planning and management of Automotive electronic system solutions.	Make informed decisions in the selection of candidate solutions, approaches, tools, techniques and methods based upon rational criteria and evidence gathered as a result of a process of review of established knowledge, current research, direct investigation and analysis.	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret concepts and principles of Automotive electronic systems.	Use a range of established techniques to initiate and undertake critical analysis of information.	Analyse and describe underpinning theories, solutions, approaches, tools, techniques and methodologies related to the concept, development, adoption and management of Automotive electronic systems technology based solutions, and to critically discuss and evaluate these.	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront of automotive engineering
Problem solving	Evaluate the appropriateness of different approaches to solving Automotive electronic system problems.	Critically evaluate the appropriateness of different approaches, identified through coherent investigation and analysis, to solving problems requiring an appropriate analysis of an Automotive electronic systems technology based solution.	Develop innovative and commercial Automotive electronic systems technology -based solutions in response to a range of problems, and apply sound judgment in determining their requirements and constraints, and to manage, plan and control in complex and unpredictable contexts, the processes, stages and decisions involved in the development of these solutions.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations.
Communication	Communicate the results of technical study/work accurately, reliably, and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms, to specialist and non-specialist audiences, and deploy key techniques of Automotive electronic systems effectively.	Communicate effectively to different audiences using appropriate media, technology and techniques, complex information, ideas and discussion concerning problems, solution outcomes, solution development processes, results of research, investigation and rational justification.	Communicate their conclusions clearly to specialist and non-specialist audiences.
Application	Apply the basic principles and techniques required for the study and development of Automotive Electronics .	Apply underlying concepts and principles outside the context in which they were first studied to develop appropriate designs and materialisations of Automotive electronic systems technology solutions.	Apply effectively appropriate tools, techniques and methodologies and to adapt and extend existing technical or business solutions, approaches, tools, techniques and methodologies where necessary or appropriate use of ideas and techniques, some of which are at the front of Automotive electronics technology.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the automotive engineering body of knowledge.
Reflection	Demonstrate qualities and transferable skills necessary for employment and/or further study requiring the exercise of some personal responsibility.	Demonstrate qualities and transferable skills necessary for employment or further training including the development of existing skills, and acquisition of new competencies that will require the exercise of personal responsibility and will enable students to assume significant responsibility within organisations.	To act as an Automotive electronics professional and demonstrate an understanding of professional and personal responsibility and issues including ethical, legal and social context in which solutions are developed and operated, and to manage their continuing professional development and lifelong learning for employment or further training of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working	work effectively in teams	undertake different roles within teams	Manage and organise team working activities	Lead, manage and organise teams effectively.

Table 8: Level Learning Outcomes: BEng(Hons) Product Design Engineering

On completion of each level of study of BEng(Hons) Product Design Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering and to product design	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to product design in a function based context	demonstrate a systematic understanding of key areas of product design in a function based context. Display acquisition of coherent and detailed knowledge from the forefront of the defined aspects of the discipline
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering and assessment of products	Demonstrate knowledge of the main methods of inquiry in problem solving in product design in a function based context	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to product design in a function based context
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields but most specifically, product design	Use a range of established techniques to initiate and undertake critical analysis of information in product designs in a function based context	Describe and comment on current research and practice in product design in a function based context and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgments
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering and in product design	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problem in related fields. Use appropriate tools and undertake development tasks in a variety of contexts.	Apply the methods and techniques learned to review, consolidate extend and develop product design engineering solutions.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in product design engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.

Table 9: Level Learning Outcomes: BEng(Hons) Robotics Engineering

On completion of each level of study of BEng(Hons) Robotics Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological principles and their application to engineering	demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to robotic systems	demonstrate a systematic understanding of key areas of robotics. Demonstrate acquisition of coherent and detailed knowledge from the forefront of defined aspects of the discipline.
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.
Enquiry	Present, evaluate and interpret qualitative and quantitative data using appropriate technologies and basic techniques appropriate to general engineering	Demonstrate knowledge of the main methods of inquiry in problem solving in robotics	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to robotics
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields but most specifically, robotics	Use a range of established techniques to initiate and undertake critical analysis of information in robotics and wherever systems combine electronic and mechanical and software functions	Describe and comment on current research and practice in robotics and critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgments
Problem solving	Evaluate the appropriateness of different approaches to solving problems within general engineering	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate effectively information and arguments in a variety of forms to specialists and non-specialists alike and deploy key techniques of the discipline effectively.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.
Application	Apply basic knowledge of the principles and techniques required for the effective application of appropriate technologies.	Apply underlying concepts and principles outside the context in which they were first studied to understand a variety of problem in related fields. Use appropriate tools and undertake development tasks in a variety of contexts.	Apply the methods and techniques learned to review, consolidate extend and develop robotics solutions.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in robotic engineering	Demonstrate qualities and transferable skills necessary for employment or further training Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within organisations.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.
Team working:	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.

Table 10: Level Learning Outcomes: BEng(Hons)/MEng Telecommunication Engineering

On completion of each level of study of BEng(Hons)/MEng Telecommunication Engineering, the student will be able to:

Learning Outcomes	Level 4 Certificate	Level 5 Intermediate	Level 6 Honours	Level 7 Masters
Knowledge and understanding	Demonstrate knowledge & understanding of basic theories, principles and concepts relating to technological and principles and their application to telecommunication engineering	Demonstrate knowledge and critical understanding of scientific concepts and established design methodologies applied to telecommunication engineering	Demonstrate a systematic understanding of key areas of telecommunication engineering and acquisition of coherent and detailed knowledge from its forefront of the discipline	Demonstrate a systematic understanding of knowledge which is at the forefront of telecommunication engineering
Learning	Develop lines of argument and make sound judgements in accordance with basic technological theories and concepts.	Understand the limits of their knowledge, and how this influences analyses and interpretations based on that knowledge.	Demonstrate an understanding of the uncertainty, ambiguity and limits of knowledge.	Demonstrate the independent learning ability required to advance their knowledge and understanding and to develop new skills to a level to continue professional development.
Enquiry	Present, evaluate and interpret qualitative and quantitative data showing an awareness of the key principles of Information Literacy using appropriate technologies and basic techniques appropriate to telecommunication engineering.	Demonstrate knowledge of the main methods of inquiry in problem solving in telecommunication engineering and demonstrate application of the key principles of Information Literacy.	Deploy accurately established techniques of analysis and enquiry and initiate and carry out projects appropriate to telecommunication engineering. Evaluate use of Information Literacy, including the ethical use of information in telecommunication engineering.	Demonstrate a comprehensive understanding and critical evaluation of methodologies and techniques, including Information Literacy, applicable to their own research or advanced scholarship and, where appropriate, propose new hypotheses.
Analysis	Evaluate and interpret the applicability of concepts and principles used in a range of engineering fields.	Use a range of established techniques to initiate and undertake critical analysis of information in fields of telecommunication engineering such as IP telephony, communications, signal processing, electromagnetic environment and mobile computing devices.	Critically evaluate arguments, assumptions, concepts and data (including incomplete data) to make judgements on current research and practice in telecommunication engineering.	Demonstrate a critical awareness and evaluation of current research, advanced scholarship, contemporary problems and/or new insights, much of which is at, or informed by, the forefront of telecommunication engineering
Problem solving	Evaluate the appropriateness of different approaches to solving problems within telecommunication engineering.	Evaluate critically the appropriateness of different approaches to problem solving and propose solutions to problems arising from analysis within telecommunication engineering.	Develop appropriate questions to achieve a solution, or identify a range of possible solutions, to a problem and use decision making in complex and unpredictable contexts applicable to telecommunication engineering.	Evaluate complex issues both systematically and creatively, making sound judgements in the absence of complete data, and employ appropriate decision-making in complex and unpredictable situations in the context of telecommunication engineering.
Communication	Communicate technological results, ideas and solutions accurately, reliably and with structured and coherent arguments.	Communicate information, arguments and key techniques of the discipline effectively, in a variety of forms both to specialist and non-specialist individuals.	Communicate and analyse information, ideas, problems and solutions to both technical and non-technical audiences.	Communicate the conclusions of their new research problems and solutions clearly to specialist and non-specialist audiences.
Application	Apply basic knowledge of the principles and techniques in the area of telecommunication engineering.	Apply a variety of underlying concepts and principles from inside and outside the context of telecommunication engineering, by using appropriate tools and undertaking development tasks.	Apply the methods and techniques learned to review, consolidate, extend and develop telecommunication engineering solutions.	Demonstrate originality in the application of knowledge, together with a practical understanding of how established techniques of research and enquiry are used to create and interpret the telecommunication engineering body of knowledge.
Reflection	Demonstrate understanding of professional, ethical and legal issues relevant to the use of technological solutions in telecommunication engineering	Develop existing skills and acquire new competencies that will require the exercise of personal responsibility and decision-making and will enable assumption of significant responsibility within the telecommunications industry.	Manage their own learning, exercise initiative, personal responsibility and demonstrate the learning ability, qualities and transferable skills necessary for employment or further study of a professional or equivalent nature.	Demonstrate the qualities and transferable skills necessary for employment requiring the exercise of initiative and personal responsibility, self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level.
Team working	Demonstrate the ability to work effectively as a team member	Demonstrate the ability to undertake different roles within teams.	Manage and organise team working effectively.	Lead, manage and organise teams effectively.

5. How is the award structured?

The awards in this programme are designed to be taken on a full or part-time basis. The awards will typically take three years full-time to BEng(Hons) at 120 credits (and a Level) per year. The overall duration of the award will be extended by a year if an optional industrial placement is taken between levels 5 and 6. The maximum duration of registration for the BEng(Hons) or MEng is 8 years.

Part-time students typically progress at 60 credits per year, but may study credits from Levels 5 and 6 in the same period of study, subject to module prerequisites. Workplace-based general option modules at Levels 5 and 6 may enable more credits to be taken in an academic year.

Admission with advanced standing to Levels 5 or 6 or with credits for part of a level including Level 4 may be possible via the process of Accreditation of Prior Experiential Learning.

For example a full-time student entering with a suitable HNC may be given 120 credits APL for Level 4, and would then complete the BEng(Hons) in 2 years full-time. A part-time entrant with a suitable HND could receive 180 credits APL at levels 4 and 5 and could then complete BEng(Hons) in 2 years with suitable workplace-based modules or 3 years with an entirely attendance based choice of modules.

For details of the requirements for progression between levels for intermediate BEng awards and for APEL, please consult: <http://www.staffs.ac.uk/current/regulations/academic/index.php>

The award of non-honours BEng is offered to students completing 240 credits at levels 4 & 5 and any 60 award specific credits at level 6. This may be a consequence of a failure in Level 6 modules or an incomplete profile, and is not a validated route. Figure 1 shows the award structure and overview.

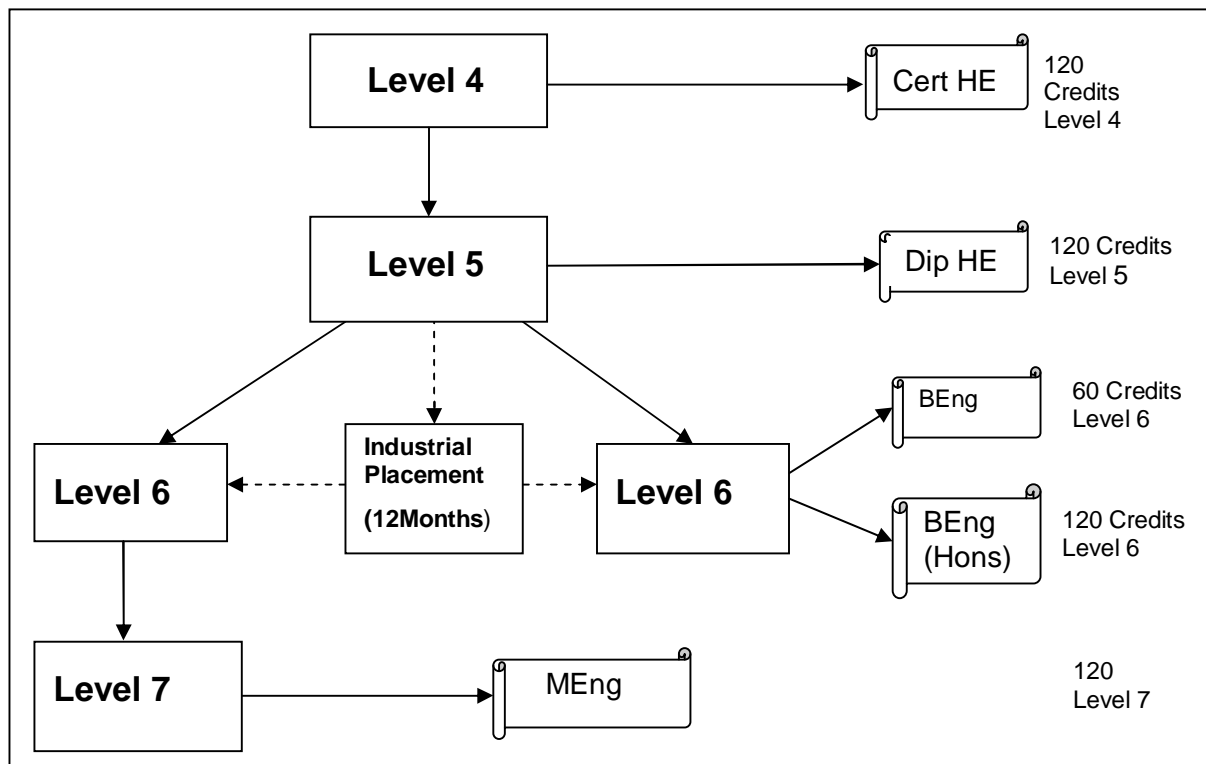


Figure 1: Award Structure and Routes overview

At level 4, there are two different mathematics routes one for students who require extra support in mathematics and one for students with A-level Mathematics or equivalent as shown in Figure 2.

Students entering Level 4 of the BEng(Hons) awards with A Level Mathematics or equivalent follow a standard mathematics route of 15 credits "CE61012-4 Mathematics Foundations for Engineers" in Teaching Block 1 and 15 credits "CE00554-4 Software for Engineers" including mathematical software, in Teaching Block 2.

Students who require extra support in mathematics, follow a modified route to the same Level 4 output standard. This is achieved by taking 15 credits "CE61006-4 Quantitative Methods" in Teaching Block 1, followed by 15 credits "CE61010-4 Balancing Mathematics for Engineers" in Teaching Block 2. This latter is an additional module. These students also take "CE00554-4 Software for Engineers" in Teaching Block 2. Allocation to which mathematics "stream" has been entirely based on qualifications presented and counselling by the mathematics teaching team.

The above arrangements enable all students to achieve the mathematical standard required for level 5 entry.

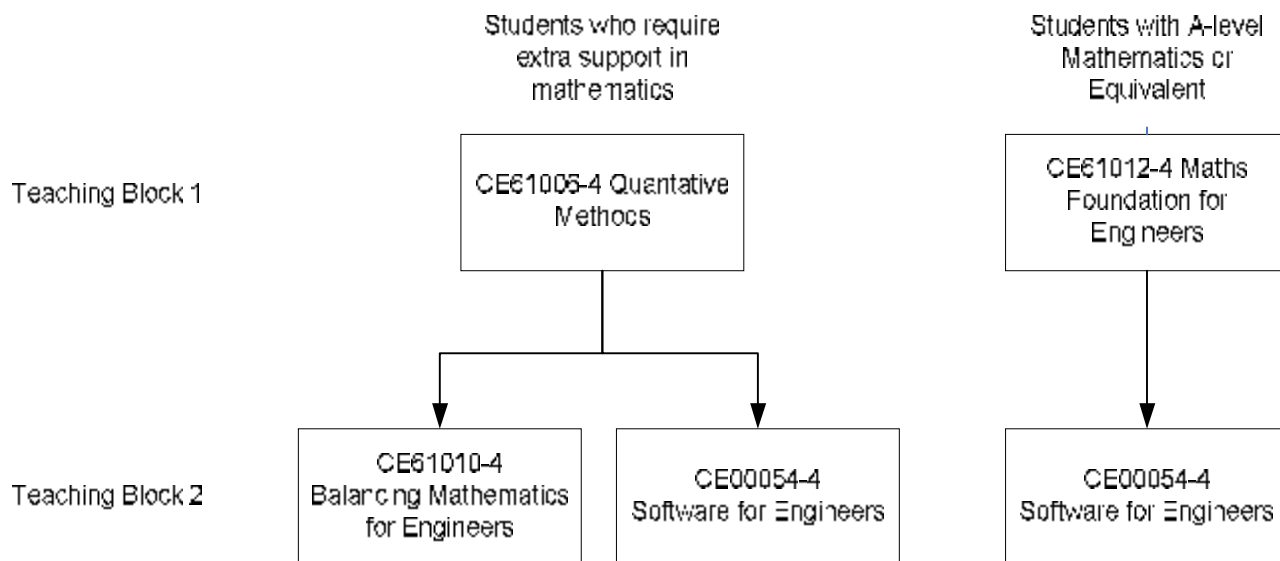


Figure 2: Level 4 Mathematics Curriculum Structure

The CE61012-4 Mathematics Foundations for Engineers module is core for all MEng students.

Appendix B shows structure of awards, mapping to University learning outcome statements and mapping to Engineering benchmark statement.

6. How will I learn on this award?

6.1 Learning Opportunities

Your learning opportunities include, e-learning and classroom based learning, and involves a broad spectrum of activities appropriate to the learning outcomes and the assessment methods. These activities range from entirely self-managed study, timetabled formal lectures, tutorials, laboratory based work and presentations. You will have opportunities to use and develop theoretical knowledge, computer based models, and to design, to implement and to test. The transferable skills of presenting, writing, discussing, working with others, and managing your own time are developed through the programme.

In developing the programme consideration has been given to the overall learning and assessment strategy, and to the impact on your workloads. As would be expected for any honours programme, you are expected to have a high level of commitment and to be responsive to the challenges at their relative levels as you progress through the programme. Part of these challenges is for you to develop your time management and personal learning skills. Assignments are normally given to you early in a module and you should have ample opportunity to complete the work if you manage your time effectively.

The requirements of the modules will be communicated to you through module descriptors, module handbooks and by discussions with module tutors.

A review of learning opportunities with reference to relevant assessment methods is presented below:

Laboratory assignments / practical work / log book records / reports - Computer based exercises - Simulation exercises

Many learning opportunities are provided by practical work of some form. This occurs for example in laboratory based assignments for which you maintain a log book (whilst in the laboratory) and produce a report. The practical work may take the form of undertaking experimental test measurements, building items of technical equipment, undertaking design work, implementing web-based or other computer-based or media-based code or solution, or implementing an individual design project.

Generally practical work is linked to theoretical concepts and analytical skills developed in lectures and tutorials.

Presentations and oral examinations

Opportunities are provided in assignments in which presentations, as well as project management techniques, team working, design and written reports, play a part. Final year projects include presentations and interviews at two stages throughout the year.

You may be interviewed by external examiners during the final year (meetings are held in laboratories where students demonstrate their project work and discuss award issues).

You will also participate in a 'Graduate Exhibition', attended by people from industry, staff from the University, and parents and friends of the students.

Problem solving exercises

Problem solving activities are undertaken at several levels. As a formal component of modules, tutors set problems for you to tackle, and on which assessment may be based. The level of challenge ranges from fundamental knowledge to those that develop a deeper understanding. These are often generated entirely by the module tutors based on their own experience. The challenges in student projects, which integrate learning, involve solving a range of problems requiring analytical and design skills, knowledge and time management.

Design tasks

Design skills are introduced and developed through tutorials, problem solving exercises, and final year projects. Design requires knowledge and understanding, a requirement and specification, the tools and techniques to design, realise and test, and the project management skills to manage the process.

Individual projects and reports

You will undertake a final year project and produce a proposal, progress report and final report. You are required to review published literature and other relevant published works, and to set your work in the context of other work in the field. Presentations at the final assessment in June include the use power point. These are formally assessed as part of the marking of the Final Year Project.

You will be required to work with and liaise with other people throughout your studies. This involves liaison with supervisors and other university staff e.g. technical staff and administration staff.

You also learn from the range of assessment activities that you will be subjected to. Learning in these cases often relates to transferable skills, although the transferable skill itself may not be explicitly assessed. These activities include presentations, engaging in an interview, log-book preparation, and written report writing. In these activities you should receive feedback from you assessors to assist them in further developing their skills.

6.2 Assessment Methods

Assessment methods applied include

- Unseen examinations / class tests.
- Laboratory assignments / practical work / log book records / reports.
- Learning Portfolio
- Case Studies
- Problem solving exercises.
- Essay assignments.
- Design tasks.
- Computer based exercises. Simulation exercises.
- Assessment Work-Based Learning
- Presentations and oral examinations.
- Poster displays
- Individual projects and reports and Graduate Exhibition presentations.

Assessment is anonymously marked with tutors using clear published criteria and sample verification by both internal second marker and external examiner is undertaken to ensure parity of marking standards.

Feedback is provided in a variety of ways including written comments on assignment and cover sheets by the assessor, formally by module tutors reviewing coursework and examination performance in one-to-one student appraisal sessions; and informally by personal tutors discussing areas of improvement.

Normally, to pass a module you have to achieve a grade-point 4 (40%) average (Grade 7 or 50% on Level 7 modules) across the assessment elements. However, in addition, for modules with multiple assessment components you must achieve at least a grade-point 3 (compensatable fail grade) for each of the summative assessments.

So, you may achieve a module average grade-point of 4 (7) or more but still be referred in one or more components if any element of assessment is grade-point 0 or 1. This is to ensure that all students demonstrate engagement with the full range of learning objectives and assessments for each module.

The range of assessment techniques includes exposure to formal examinations, at no more than 70% weighting, principally to assess knowledge, understanding, application and closed problem solving.

The Faculty and hence the Engineering teaching team operates 'standard menu' of assessments (see the following table) to ensure that there is parity in assessment loading between its modules.

Typical assessment breakdowns for 15-credit modules

	100% Exam	70% Exam: 30% ICA	50% Exam:50% ICA	100% ICA
Exam Duration	3 Hours	2 Hours	2 Hours	
Coursework Element(s)		1000 words <u>or</u> 15 minutes presentation <u>or</u> 45 minutes class test	1500 words <u>or</u> 30 minutes presentation <u>or</u> 1 hour class test	Up to 2 pieces based on 2000 words <u>or</u> 3 minutes oral presentation per credit

We use more than one assessment for all of its modules for a number of reasons, including:

- To use a greater variety of smaller assessment formats rather than overuse large formats such as major reports/5000+ word essays or 3 hour exams to reflect the 150 hour learning time of modules;
- This diversity of assessment is important for students with a range of different learning abilities and styles (including special educational needs)
- To allow group assessments within modules to be balanced by another individual assessment
- To provide you with 'another' chance if they under-perform for a particular assessment within a module
- An earlier assessment provides a useful formative function for the second later assessment

7. How do I hand in assignments?

You will always be required to hand in written assignments relating to Faculty of Computing Engineering and Technology modules to the Faculty Office, either in the Octagon, Stafford, or Brindley, Stoke. Instructions for the submission of practical assignments will be included in the relevant module handbooks.

It is your responsibility to ensure that you submit assignments on time and at the appropriate place.

The Faculty Office is open to take your assignments at the following times:

Monday to Thursday	8.45 am – 3.30 pm
Friday only	8.45 am – 3.30 pm

ASSIGNMENTS WILL ONLY BE ACCEPTED DURING THESE HOURS.

Written assignments to be submitted to the Faculty Office should have stapled to them an *assignment receipt form*, available from the Office.

Please ensure that you fill in *all* sections, particularly the module title and tutor's name before coming into the Office to have it stamped; space is at a premium and the Office is very busy on assignment submission days, so do plan to submit your work in plenty of time.

Note that some assignments are marked anonymously, and that you are asked to fold and stick down the right hand flap of the assignment receipt form to conceal your name before handing in your work to the Faculty Office. This is an important tool in helping to safeguard the integrity of the assessment process. Anonymous marking, however, is usually confined to conventional essay type assessments, as with other kinds of assessment (for example, an artefact or presentation report or dissertation) the tutor would normally be aware of the author's identity.

If you have a problem with dyslexia, make sure that you ask for one of the yellow labels (available from your Award Leader/Personal Tutor or if at the last minute the Faculty/School Office) to attach to your work to signal to the tutor that the assignment needs to be marked on content and understanding rather than on syntactical and grammatical competence.

The form you will complete is in duplicate. It is most important that you use a biro so that both copies are marked. Having completed it go into the Office where a member of staff will date stamp and sign both copies of the form and return one copy of it to you.

KEEP THIS SAFE! IT IS A RECEIPT, WHICH YOU CAN PRODUCE TO SHOW THAT YOU HAVE SUBMITTED YOUR ASSIGNMENT.

We would normally expect you to hand in your work in person, but recognise that this may not always be possible. If you are unable to hand in your written assignments in person, you can submit them via the post, using recorded delivery. This is important as should your work not arrive, we need to be able to find out what happened to it. All work which is submitted in this way will be dated according to the postmark.

YOU SHOULD ALSO NOTE THAT NO WORK WILL BE ACCEPTED WHICH HAS BEEN SENT BY FAX OR E-MAIL.

Finally, it hardly needs to be said that it is always, of course, good practice to keep a hard or (backed up) electronic copy of any assignment you submit. Should the assignment you submitted get lost then you will have the receipt to prove that you handed it in and a copy to replace what has been lost.

8. Feedback on Your Work

The University's Academic Board has been considering the outcomes of the last National Student Survey and discussing how it can provide quicker assessment feedback to students. This guidance refers to summative (actual) rather than formative (practice) assessments. In relation to this, the following has been agreed:

Coursework and other assessments, excluding examinations

You will normally receive feedback on all your assessments, other than examinations, within 20 working days following the date of submission of your assessment or actual date of the assessment (in the case of class tests). For some assessments the feedback period will be less than 20 working days. However, it may be the case that the 20 day rule for some assessments cannot be met for justified reasons (for example, modules on which a large number of students are enrolled). However, it is anticipated that this will apply to only a small number of modules on your award and, in those cases, the feedback return period will not exceed 25 days. The anticipated feedback return times for all assessments will be published in your Module handbooks.

In order to ensure that feedback is provided within 20 days, in most cases, the marks for your work will be provisional and will be subject to final ratification by the appropriate Assessment Board in due course.

Formal University examinations

Feedback for examinations will always be provided and should be available as soon as possible after the relevant examination. Where appropriate, feedback on examinations at the end of the last teaching block in the final year should be provided in the form of generic, group feedback through the University VLE.

At the latest, feedback should be provided at least four weeks before the next examination period.

The University hopes that you will also play your part by ensuring that you collect feedback from the relevant sources as soon as it is available.

9. Personal Development Planning and Personal Tutoring

Reflection on the achievements and experience in the modules, and a focus on formation as a professional engineer provide a Personal Development Planning (PDP) and employability theme to the student experience at all levels. This is augmented by personal tutor support in the reflective, skills rating and goal setting processes inherent to our PDP approach.

Other employability related modules and opportunities to be assessed on reflection on placement experience are available at Levels 5 and 6. Besides the direct industrial relevance of much of the engineering programme curriculum, Final Year Projects be externally suggested and supported adding significantly to the employability of students choosing such topics.

The placement experience, whilst optional, adds strongly to the employability of students who choose it. The ethos of the three/four levels of awards in this programme is to make the engineers from it highly attractive to engineering employers.

10. Accreditation of Prior Learning

The Accreditation of Prior Learning is the term used when a student uses his or her previous experiences to gain admission to a programme of study; admission to a module; admission at an intermediate stage in a programme (advanced standing); or to gain exemption from part of a programme of study. These previous experiences may be work-based learning, general learning experiences (experiential) or certificated qualifications.

You should normally apply for exemptions or admission with advanced standing through the AP(E)L scheme when you apply for a place on the award, or immediately upon registration for your modules. You will not be allowed to apply for AP(E)L in a module once you have submitted any assessment for that module.

If you apply for exemptions or admission with advanced standing through the AP(E)L scheme you may be required to undergo some assessment to determine the relevance of your experiences/qualifications.

The APL and AP(E)L forms can be obtained from the Faculty of Computing Engineering and Technology Office. The APL and AP(E)L Board meets in early October. It is chaired by one of the Faculty's Programme Area Managers and its purpose is to consider all the APL and AP(E)L applications received from students and uphold or reject these applications dependant on the evidence provided.

11. Award Regulations

Your award is regulated by the Undergraduate Modular Framework or the Regulations for Postgraduate awards.

These can be accessed at : <http://www.staffs.ac.uk/current/regulations/academic/index.php>

An important new regulation for 2010-11 relates to referrals and resits on assessments.

Module Failure - what happens if I fail a module?

If you have failed to satisfy the assessment criteria of the module, you will be awarded a **fail grade** (Grade Points 3, 2, 1 or 0). If you have failed to submit any assessment for the module, you will be given a **Grade Point N** (Fail due to non-submission) for the element(s) of that module and you will only be allowed a further attempt at that element(s) of the module at the discretion of the appropriate Board.

If I fail a module, can I resit it?

(i) If you made an attempt at your assessments at the first attempt:

You will only be guaranteed an opportunity to attempt referrals **once IF, and only if**, you have made an attempt at the assessment(s) on the first occasion unless a claim for Extenuating Circumstances has been successful.

(ii) If you did not make an attempt at your assessments at the first attempt:

If you do not submit work or attend assessments at the first attempt, that guarantee of a referral is lost and the appropriate Board will decide whether or not to allow you a referral. In making its decision, the Board may take account of your engagement with that module.

If the Board does allow you a referral(s) and you do not take the referral(s) at the time notified to you by your Faculty/School, no further referral opportunity will be given to you and you may fail the award.

When can I take my resit(s)?

In all cases, if you are allowed a referral(s), the referral(s) must be taken at the next resit opportunity. For most students, this will be in August 2012 but will depend on the nature of the award and the timing of your assessments.

It is your responsibility to make sure that you know when you are required to resit.

12. Award Specific Regulations

Assessment Component Pass Marks

You are required to gain at least 30% in each component of assessment, and get an aggregate mark of over 40% (50% on Level 7 modules in MEng year4) in order to pass a module.

Non-Compensatable Modules@ Level 6 BEng(Hons)

The importance of the Final Year Project (CE00629-6, 30 credits) and the associated professional studies module “The Professional Engineer” (CE00627-6, 15 credits) is recognized by their being non-compensatable. Satisfactory completion of these modules confirms achievement of a range of learning outcomes and a commitment to development as an engineer and is vital in demonstrating that graduates from the programme meet nationally and internationally accepted standards.

Transfer/Progression from BEng(Hons) to MEng

Students enrolled on MEng progress to its distinctive Level 6 & 7 subject to a satisfactory performance at Levels 4 & 5, typically based on a Level 5 GPA of 7 (including compensations) , and subject to counseling.

Similarly, progression to level 7 requires all modules at undergraduate level to have been passed.(See Postgraduate Regulations section 1.5)

Award of Classified Honours Degree to Students Failing to Complete Level 7

Students who fail to complete Level 7, but who have demonstrated achievement of the Learning Outcomes of Level 6 will be considered for a classified honours degree calculated on their L5/6 profile as per UMF undergraduate regulations.

Classification of MEng

Students passing MEng with a GP average >13.00 will be awarded MEng with Distinction.
Students passing MEng with a GP average 10.00-12.99 will be award MEng with Merit
Students passing MEng with a GP average 7.00-9.99 will be awarded MEng.

Compensation in Level 7 Modules

Up to 30 credits at Level May be compensated at GP4,5,6.

13. Placements

13.1 Introduction

The Faculty of Computing, Engineering and Technology produces and issues an 'Industrial Placements Handbook' to all students considering going on a placement. This handbook gives full information on the aims, objectives, requirements and assessment of an industrial placement. In addition to consulting this document, you should also consult the placements co-ordinator - the member of staff with specific responsibility to co-ordinate student placements and supervision. The following information in this section is for guidance only.

The supervised work experience or placement comes at the end of your second year and although it is optional, you are strongly advised to go on a placement if one can be found for you, particularly if you have no previous work experience.

Obtaining a placement involves you in preparing a CV, applying for jobs, attending interviews and, if successful, working in a company and putting into practice the skills, and using the knowledge, you have gained over the previous two years. You will, of course, gain experience in the operational side of business and will continue to expand your own knowledge base.

The period of supervised work experience will comprise a minimum of 36 weeks and will normally take place between Level 5 and Level 6. If taken at the normal time, a maximum period of the order of 60 weeks is available. During the period of placement you will be visited by a University tutor who will assess the quality of the work experience being provided for you and offer advice on the completion of the necessary reports which are used for assessment of your performance during the placement.

As well as giving you experience in preparing a CV and attending interviews, the period of supervised work experience enables you to gain experience in your field which will support and complement your studies. You are required to work under the supervision of a senior manager in seeking solutions to problems identified as being of importance to the company. In this way you are able to apply much of the knowledge and skills gained at Level 4 and Level 5 and to appreciate the relevance of the academic studies.

It is also possible that the employer will evaluate your potential through observing your performance over a prolonged period with a view to offering permanent employment on graduation.

13.2 Supervision of Industrial Placements

Students on industrial placement will be allocated a placement tutor, (a member of the academic staff) who will visit the student at least twice during the placement period. A record of the visits is made on an Industrial Visits monitoring form.

The Placement tutor will assess the progress of the student, the suitability of work allocated by the Company and review the log book, as well as identifying and resolving as far as possible any other issues which may be affecting or concerning the student.

Whilst in industry, the student will work under the direction of a responsible engineer and the placement tutor will normally consult this person during the visits.

13.3 Assessment of Supervised Work Experience

Assessment is based on two reports you submit at the end of the placement. The first report is used to describe a project you were involved in during your placement. The second report outlines an aspect of the commercial operation of the company. As part of the assessment a representative from the placement company will be invited to join an assessment interview panel on your return to the university. On satisfactory completion of a placement following level 5 studies to complement your BEng(Hons) award and to confirm that it is a sandwich award, you will be awarded a certificate of achievement.

13.4 The Faculty Placements Office

The Faculty Placements Office is in C012 Beacon. Staff in these offices will provide you with support in finding a placement.

The member of academic staff responsible for placements on your award is Mr David Link, room K334, telephone Number: 01785-353284, email: d.link@staffs.ac.uk

14. Level 6 and Level 7 projects

Independent Project work contributes 30 credits at Level 6 of the BEng(Hons) awards and 60 credits at level 7 of the MEng awards. Fuller details are available in a separate Project Handbook, available at the commencement of Level 6/7. These are major pieces of individual investigative work involving planning, literature survey, practical and simulated experimentation, and detailed analysis. Assessment is based on a range of interim progress reports, a final project dissertation, and oral presentations. The project is intended to combine, develop and assess the range of your subject-specific and transferable skills.

In the case of BEng(Hons) awards it is an additional requirement that Level 6 must include the satisfactory completion of the project module. A minimum Grade Point of 4 is required.

For level 6 projects, students are normally expected to devote 2 days or 4 half days per week. For students working on level 7 projects the time allocated to the work should be about 40 hours per week.

For more information, please refer to the project handbook which is available on the University website.

15. Professional Body Recognition

All the awards are accredited for the fulfilment of the academic requirements for Chartered Engineer (CEng) Status. The list of awards and accrediting professional Institutions are listed below:

Institution of Mechanical Engineers (IMechE)

BEng(Hons) Mechanical Engineering
MEng Mechanical Engineering
BEng(Hons) Mechatronics
MEng Mechatronics

Institution of Engineering and Technology (IET)

BEng(Hons) Electronic Engineering
BEng(Hons) Mechanical Engineering
BEng(Hons) Mechatronics
BEng(Hons) Electrical Engineering
BEng(Hons) Network Engineering
BEng(Hons) Automotive Engineering
BEng(Hons) Automotive Electronics
BEng(Hons) Product Design Engineering
BEng(Hons) Robotics Engineering
BEng(Hons) Telecommunication Engineering

Accreditation means that, on completion of your BEng(Hons) + accredited MSc or MEng degree, and after a period of professional development and professional review, you can apply for the registration as Chartered Engineer (CEng). Figure 3 below illustrates the progression and requirements for CEng registration. These requirements are set by the UK Standard for Professional Engineering Competence (UK-SPEC). For more information, please visit UK-SPEC web site on: www.ukspec.org.uk

Students on this programme are strongly encouraged to register with the Institution of Mechanical Engineers (IMechE) or the Institution of Engineering and Technology (IET) as a student member. Staffordshire University hosts most of the meetings organised by the IMechE and IET local branches. As a student member you will obtain information on these events as well as those held nationally. To register as a student member you should contact:

IMechE: Peter Wardle C211 p.wardle@staffs.ac.uk
IET: Sam Wane D107 s.o.wane@staffs.ac.uk



Figure 3: Progression and Requirements for CEng Registration

16. Academic Dishonesty and Plagiarism

The University and faculty take the issues of academic dishonesty, plagiarism or cheating very seriously. If you get caught breaking the University's rules, you can expect to be punished – this might mean failing an assignment, failing a module or even failing your award and being asked to leave the University.

It is vitally important that you understand the rule regarding plagiarism. These can be found at:

http://www.staffs.ac.uk/images/academic_dishonesty_tcm68-12681.pdf

There are several resources available to help you in writing and preparing assignments so that you do not break the rules. You might want to look at the following resources.

<http://www.staffs.ac.uk/uniservices/info services/studyskills/>

If in doubt, make sure you ask your tutor before you submit work, or arrange to see someone in the Study Skills Centre (located in the library).

Appendix A – Glossary of Terms

Module	A unit of study with a defined learning outcomes, curriculum and assessment. The module definition is to found in the module specification for the module. Each module has a number of Credits, associated with it. A single module is worth 15 Credits and notionally requires 150 hours of learning activity to complete. This learning activity being divided between time for class contact hours with staff, independent study and assessment. The number of allocated learning hours rises in proportion to the number of Credits attributed to a module at the rate of 10 hour per credit. All modules are multiples of the basic unit of 15 Credits. So for example, a double module will be worth 30 Credits and will have a learning time of 300 hours.
Core module	This is a module that you must take and pass to qualify for a given award title or range of titles.
Award Option	This is a module chosen from a list of Award Option modules. Award Option modules are studied in conjunction with the core modules and from the prescribed set of modules for a particular named award
General Option	This is a module which you can choose from a set of modules which have been designed to complement your Award. This is to allow you to broaden your knowledge and skills base if you wish by taking some supplementary studies in addition to your main subject area.
Co-requisites	Co-requisites are those modules that you must take as a package. All the Level 4 core modules can be considered to be co-requisites. We have defined co-requisites to make sure that there is sufficient shape and coherence in your programme of study to make it a rewarding and interesting experience. A corequisite is therefore a module which must be studied in addition to and normally at the same time as a particular module.
Pre-requisites	A pre-requisite is defined as a specific requirement that you must meet before you can take a module. In a similar way as entry to an Award was dependent on your achieving A-Level or BTEC passes for example, or having other prior knowledge, for some modules you will have to be 'qualified' to take them. This will normally mean studying for a module at an earlier level in the Award. Pre-requisites are specified to make sure that you have the knowledge and skills you will need to be successful in your chosen modules. Please refer to the Undergraduate Modular Framework Regulations for a more detailed description of this term in particular the distinction between the terms pre-requisites' and 'Special Admissions Requirements'.
Disqualified Combinations	Although rare, disqualified combinations are those modules which you cannot study together. This is normally because the content of the modules overlaps in some way, such that by taking both you would not cover the equivalent of two-modules learning.
Grade (Point)	On completion of the assessment of a module, you will be assigned a grade for that module in the range 0 to 15. In considering your performance at the end of a Level, grades will be averaged to produce grade point average for the Level (weighted by the size of the module). Grade points run from 0 to 15, with 0-3 being fail grades for undergraduate module, and 0-6 being fail grades for postgraduate modules.
Level	This indicates the academic level at which study is to be undertaken – Certificate level (module level 4 year 1), Intermediate level (module level 5 year 2) and Honours level (module level 6 year 3). Normally it corresponds to one year of study for full-time students. However, students may take modules from different levels at the same time, provided that they meet the requirements for their award.
Teaching block	A period of study into which the year is divided, that may include induction learning, assessment and academic counselling. There are currently two teaching blocks in each academic year.

Appendix B

Structure of awards, mapping to University learning outcome statements and mapping to Engineering benchmark statement.

Notes and guidance

Tables 1c to 4c contain structures for awards in your programme correct at the time of publication of this handbook. It is your responsibility to ensure that you are enrolled on the correct number of modules, including general options. You will be automatically enrolled on core modules, but where there is an element of choice, you must ensure that your module enrolment form and the modules you are actually studying correspond.

C = Core Modules: You MUST study these.

O = Option Modules. These are options where you may choose from a limited set. They provide some “flavouring” within your award.

G = General option module: These are options where you may choose from a wider set of modules, including University-wide at Levels 5 and 6 in order to allow you, should you so wish, to take modules outside the field of engineering.

A = Additional module (for those without A2 Maths or equivalent on entry).

15/15, 15/30, 30/30, 15/60, 45/60 - Number of credits in teaching block/total credits.

The Coursework (Cw) / Examination (Ex) will be 100%:0%, 50%:50% or 30%:70% depending on the module and what we are assessing.

Table 1c - Structure of Awards and Mapping to University Learning Outcomes and Engineering Benchmark Statement – Year 1, Level 4

Module Code	Teaching Block 1	Credits/Total	Assessment		Award Title																	Learning Outcomes					Engineering Benchmark								
			Cw	Ex	BEng(Hons) Mechanical Eng	MEng Mechanical	BEng(Hons) Electronic Eng	MEng Electronic Eng	BEng(Hons) Mechatronics	MEng Mechatronics	BEng(Hons) Network Eng	BEng(Hons) Electrical Eng	MEng Electrical Eng	BEng(Hons) Automotive Eng	MEng Automotive Eng	BEng(Hons) Automotive Electronics	MEng Automotive Electronics	BEng(Hons) Product Design Eng	BEng(Hons) Robotics Eng	BEng(Hons) Telecom Eng	MEng Telecommunication Eng	1. Knowledge & Understanding	2. Learning	3. Enquiry	4. Analysis	5. Problem Solving	6. Application	7. Reflection	8. Communication	9. Team working	a. Underpinning Science , Mathematics and associate engineering discipline	b. Engineering Analysis	c. Design	d. Economic, Social & Environmental Context	e. Engineering Practice
CE00432-4	Essential Mechanics & Fluids	15/15	100		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I				I	I		I		J			J
CE00431-4	Essential Electronics	15/15	100		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I				I	I		I		J			J
CE61012-4	Maths Foundations for Engineers	15/15	100		O	C	O	C	O	C	O	O	C	O	C	O	O	O	C	O	O	O	I	I		I	I		I		J				
CE61006-4	Quantitative Methods	15/15	100		O		O		O		O							O	O	O			I	I		I	I		I		J				
CE00683-4	Automotive Quantitative Methods	15/15	100											O		O							I			I	I		I		J				
CE00437-4	Instrumentation & Measurement	15/15	100		C	C	C	C	C	C	C	C	C						C	C		I		I		I			I		J			J	
CE01171-4	Automotive Instrumentation	15/15	100										C	C	C	C						I		I		I	I		I		J			J	
CE00705-4	Biologically Inspired Robotics	15/15	100															C				I		I		I		I		J		J		J	
CE00682-4	Design Technologies – Solid Modelling	15/15	100														C					I	I			I				J	J		J		
CE00129-4	Operating Systems for Engineers	15/15	100								C											I		I		I	I		I		J				
CE00684-4	Introduction to Signals and Communications	15/15	50	50															C	C		I	I	I	I	I	I	I		J	J			J	
Teaching Block 2																																			
CE00433-4	Mechanical Principles	15/15	50	50	C	C			C	C				C	C			C				I		I		I		I		J				J	
CE00434-4	Electronic Principles	15/15	50	50			C	C	C	C	C	C			C	C			C	C		I		I		I		I		J				J	
CE00435-4	Thermodynamics	15/15	50	50	C	C							C	C									I	I	I	I	I			J				J	
CE00436-4	Electrical Principles	15/15	50	50			C	C			O	C	C										I	I		I		I		J				J	
CE00554-4	Software for Engineers	15/15	100		C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I			I	I	I			J					
CE00430-4	Design Principles	15/15	100		C	C	C	C	C	C	O	C	C						C			I				I		I			J	J		J	
CE61010-4	Balancing Maths for Engineers	15/15	100		A		A		A	A			A	A		A	A	A	A	A	A	I	I		I	I	I	I		J					
CE00126-4	Intro to Networking with LANs & WANs	15/15	100								C									C	C	I	I	I	I	I	I			J				J	
CE00563-4	Automotive Design Principles	15/15	100										C	C								I			I		I	I		J	J		J		
CE00560-4	Automotive Electronics Systems	15/15	100											C	C							I		I		I		I		J		J		J	
CE00706-4	Robot Programming	15/15	50	50														C				I	I	I		I	I		J					J	
CE00681-4	Design Technologies - Surface Modelling	15/15	100																	C		I	I			I				J				J	
CE00687-4	Modelling Practice	15/15	100																		C		I		I		I			J				J	
CE00869-4	Algorithms and Data Structures in C	15/15	50	50							O										C		I		I		I		J						
CE74005-4	Technology & Environment	15/15	50	50							O											I	I	I		I		I		J	J			J	
CE00839-4	System Modelling	15/15	50	50							O					C	C					I			I	I		I						J	
CE00601-4	Introduction to Mobile and Wireless Technology	15/15	50	50																C	C	I			I	I			J	J					

Table 2c: Structure of Awards and Mapping to University Learning Outcomes and Engineering Benchmark Statement – Year 2, Level 5

Module Code	Teaching Block 3	Credits/Total	Assessment		BEng(Hons) Mechanical Eng	MEng Mechanical	BEng(Hons) Electronic Eng	MEng Electronic Eng	BEng(Hons) Mechatronics	MEng Mechatronics	BEng(Hons) Network Eng	BEng(Hons) Electrical Eng	MEng Electrical Eng	BEng(Hons) Automotive Eng	MEng Automotive Eng	BEng(Hons) Automotive Electronics	MEng Automotive Electronics	BEng(Hons) Product Design Eng	BEng(Hons) Robotics Eng	BEng(Hons) Telecom Eng	MEng Telecom Eng	1. Knowledge & Understanding	2. Learning	3. Enquiry	4. Analysis	5. Problem Solving	6. Application	7. Reflection	8. Communication	9. Team working	a. Underpinning Science, Mathematics and associate engineering discipline	b. Engineering Analysis	c. Design	d. Economic, Social & Environmental Context	e. Engineering Practice	
			Cw	Ex																																
CE00591-5	Fluid Systems	15/15	50	50	C	C			O	O													I	I	I							J	J			
CE00043-5	Engineering Design Project	15/15	50	50	C	C			O	O									C				I									J	J	J	J	
CE00604-5	Digital & Embedded Software (Real Time System) 1	15/15	100				C	C	O	O		C	C						O						I	I					J	J	J		J	
CE00341-5	AI Methods	15/15	50	50																O			I	I	I						J			J		
CE00038-5	Communications	15/15	50	50			C	C	O	O		C	C								C	C									J	J				
CE00039-5	Signal Processing	15/15	50	50			C	C	O	O		C	C			C	C						I			I	I					J				
CE01077-5	Advanced Design Technologies (Solid)	15/15	100															C					I	I									J	J	J	
CE00686-5	User Interface Design	15/15	100															C							I	I							J		J	
CE00685-5	Design Reflection	15/15	100															C						I	I								J		J	
CE62013-5	Engineering Mathematics Applications 1	15/15	50	50	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	I	I	I	I	I				J				
CE00042-5	Engineering Materials	15/15	50	50	C	C								C	C								I	I	I								J		J	
CE00881-5	LAN Switching and WAN Networks	15/15	50	50							C									C	C		I	I	I	I					J	J			J	
CE00125-5	Introduction to IP telephony	15/15	50	50							C									C	C		I	I	I	I	I	I			J			J		
CE00411-5	Transport Technology	15/15	100										C	C	C	C							I			I	I				J			J		
CE00561-5	Automotive Embedded Electronics	15/15	100												C	C								I	I	I	I				J	J				
CE00707-5	Cybernetic Systems	15/15	100																C				I	I			I	I				J			J	
CE00566-5	Vehicle Aerodynamics1	15/15	50	50									C	C									I				I	I			J	J			J	
Teaching Block 4																																				
CE00584-5	Mechanical Systems	15/15	50	50	C	C			G	G				C	C								I			I	I	I				J			J	
CE00587-5	Materials for Technologists	15/15	50	50																			I				I	I				J	J			
CE00586-5	Applications of Control	15/15	50	50	G	G	G	G	C	C		C	C							G			I	I	I	I	I				J	J				
CE62014-5	Engineering Mathematics Applications 2	15/15	50	50	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	I	I	I	I	I	I				J	J			
BLB10145-5	Management in Organisations	15/15	50	50	C	C	C	C	C	C	C	C	G	G	G	G	C	C	G	C	G	G	I	I	I	I	I							J		J
CE00121-5	Quality of Service of Converged Networks	15/15	50	50								O											I	I	I						J			J		
CE00917-5	Router Security Technologies	15/15	50	50							O											C	C	I	I	I	I	I					J		J	
CE00861-5	Advanced Routing	15/15	50	50							C												I	I	I	I	I				J			J		
CE00626-5	Digital & Embedded Software (Real Time System) 2	15/15	100				C	C	G	G		G	G												I	I	I				J	J	J		J	
CE00095-5	CAM & Rapid Prototyping	15/15	50	50	G	G			G	G				G	G	G	G						I			I	I					J		J		
CE62025-5	Spreadsheets Modelling Techs.	15/15	100				G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	I	I	I	I	I	I				J				
CE00097-5	Industrial Technical Skills	15/15	100				G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	I	I	I	I	I	I							J	J
CE00132-5	Electrical Power and Machines	15/15	50	50			G	G	G	G		C	C										I	I	I	I	I				J			J		
CE01078-5	Advanced Design Technologies (Surface)	15/15	100															C					I	I								J	J	J		
CE00096-5	Crash Investigation & Measurement	15/15	100			G	G							G	G	G	G						I											J		
CE00131-5	Environmental Impact	15/15	50	50	G	G	G	G	G	G	G	G	G	G	G	G	G						I	I	I	I	I	I				K	J	J		
BSB10262-5	Effective Career Skills	15/15	100				G	G	G	G	G	G	G	G	G	G	G							I	I	I	I	I						J		
CE00564-5	Engine Design1	15/15	50	50										C	C	G							I	I	I	I	I				J	J			J	
CE00708-5	Integrated Robotics	15/15	50	50																C			I			I	I				J	J	J			
CE00314-5	Further Programming Concepts in C++	15/15	50	50																G			I			I	I	I			J	J				
CE00562-5	Automotive Embedded Software	15/15	100												C	C									I	I	I				J					
CE00785-5	Electromagnetic Waves & Propagation	15/15	50	50																		C	C	I		I	I					J		J		J
CE00039-5	Signal Processing	15/15	50	50																		C	C	I	I	I	I	I				J				J
CE00161-5	Automated Measurements	15/15	100																				G	G	I	I	I	I				J			J	
CE00414-5	Digital Clay	15/15	100																			G		I	I	I	I					J			J	
	University General Option	15/15			G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	I	I	I	I	I									J

Table 4c: - Structure of Awards and Mapping to University Learning Outcomes and Engineering Benchmark Statement – Year 4, Level 7

Module Code	Teaching Block 7	Credits/Total	Assessment		MEng Mechanical	MEng Electronic Eng	MEng Mechatronics	MEng Electrical Eng	MEng Automotive Eng	MEng Automotive Electronics	MEng Telecom Eng	Learning Outcomes									Engineering Benchmark				
			Cw	Ex								Award Title	1. Knowledge & Understanding	2. Learning	3. Enquiry	4. Analysis	5. Problem Solving	6. Application	7. Reflection	8. Communication	9. Team working	a. Underpinning Science, Mathematics and associate engineering discipline	b. Engineering Analysis	c. Design	d. Economic, Social & Environmental Context
CE01182-7	Project	30/60	100		C	C	C	C	C	C	C	I		I	I	I	I	I	I	J	J	J	J	J	
CE00154-7	Digital Electronic Systems	15/15	50	50		O	O	O		O		I	I	I			I			J	J	J	J	J	
CE00155-7	Digital Signal Processing	15/15	50	50		O	O	O		O	O	I	I		I		I			J	J	J	J	J	
CE00441-7	Power Electronics in Electric Utility Systems	15/15	30	70		O	O	O				I		I	I					J	J	J	J	J	
CE00427-7	Advanced Power System analysis	15/15	30	70			O	C					I	I	I			I		J	J	J	J	J	
CE00451-7	Design Technologies for Masters	15/15	50	50	C		O		O			I		I	I	I				J	J	J	J	J	
CE00447-7	Structural Integrity	15/15	50	50	O		O		O			I			I		I	I		J	J	J	J	J	
CE00457-7	Energy Management Studies	15/15	50	50	O		O	O					I	I		I	I	I		J	J	J	J	J	
CE00573-7	Advanced Engine Design	15/15	50	50					C			I		I	I		I			J	J	J	J	J	
CE00802-7	IP Telephony and Voice Over IP	15/15	50	50						C		I	I		I	I	I				J	J	J	J	
CE00672-7	Wireless Networks	15/15	50	50						O		I	I	I		I	I	I			J	J	J	J	
	Teaching Block 8																								
CE001182-7	Project	30/60	100		C	C	C	C	C	C	C	I		I	I	I	I	I		J	J	J	J	J	
CE00633-7	Research Methods and Project Management	15/15	100		C	C	C	C	C	C	C	I			I	I		I			J	J	J		
CE00093-7	Embedded Real Time Systems	15/15	100			O				O		I		I	I	I				J	J			J	
CE00186-7	Telecommunications	15/15	30	70		O				O	C	I			I		I	I		J	J			J	
CE00442-7	Power System Protection	15/15	30	70					O						I	I	I		I	J	J			J	
CE00444-7	Flexible AC Transmission Systems and Custom Power	15/15	30	70					O			I			I	I		I		J	J			J	
CE00454-7	Advanced Design strategies	15/15	50	50	O							I	I	I				I		J	J	J	J	J	
CE00449-7	Applied Structural Integrity	15/15	50	50	O								I	I		I	I	I		J	J	J		J	
CE00453-7	Robotics & Automation	15/15	50	50	O	O	C					I		I	I		I			J	J			J	
CE00578-7	Sustainable Design & Manufacture	15/15	50	50	O							I		I	I						J	J			
CE00576-7	Advanced Vehicle Aerodynamics	15/15	50	50					C				I			I		I			J	J			J