Date: 01-07-2025

BEng (Hons) Automotive Engineering (with placement)

UCAS code	H336
Institution code	H12
Duration	4 years (full-time) including a one-year work placement. A three year programme is available for applicants with at least two years, full-time relevant work experience.
Start date	September 2025
Accredited by	Institution of Agricultural Engineers (IAgrE)
Location	Harper Adams University campus (and location of work placement)

Automotive Engineering is a dynamic and expanding branch of engineering challenged to develop efficient, safe and environmentally sustainable vehicles that meet the needs of a growing and more mobile global population.

Our course addresses the breadth of vehicle technologies and application with an additional focus on the off-highway vehicle sector which ranges from sports utility vehicles, to construction equipment, to defence vehicles, each of which produces further challenges to the automotive engineer.

Students will learn about on-road vehicle systems and technologies plus specialist modules will ready our engineers for the additional challenges of the off-highway sector. You will develop your knowledge and engineering skills through contextualised modules and using specialist facilities such as our Soil Hall, Off-road Track, Applied Engineering Workshop and laboratories. There is a wide range of on and off-highway vehicles available for students to use as part of project work and there are also opportunities to get involved with cutting-edge research in autonomous and connected vehicles with Harper Adams' Hands Free Farm.

You won't have to wait to put your learning into practice – you will be a member of a team of engineers from day one engaged with real-world scenarios and projects. Assessment typically includes live industry projects, creating and exhibiting new products, creative portfolios, and applying specialist engineering tools and techniques.

Supported by an integrated placement year in industry, you will be primed for your future career using personal, technical and professional skills employers have identified with us as critical to your graduate employability in roles such as researching, designing and testing the next generation of vehicles and vehicle systems.

View our facilities

A-level entry requirements

- Offers tend to be in the region of **96 - 120** UCAS points
- A2 level grades **CCC - BBB**
- Students should typically be studying **3 subjects at A2 level** to be considered
- The following subjects are preferred; Mathematics, Physics, Biology, Chemistry, Further Mathematics, Design Technology
- General Studies and Critical Thinking are encouraged but **not** included in grades required
- **4 GCSEs or equivalent at grade C/4 or above**, including English Language, Maths and a Science

- BTEC level 2 in Science at grade M will be accepted as an alternative to GCSE Science at grade C/4
- Applicants can expect to receive offers including specific grades in specific subjects (for example, a B or C at A level, or an M or D for BTEC modules)
- Key Skills (and other level 2 variants) and First Certificates/Diplomas are not accepted in place of GCSE passes
- Overseas applicants please check our English Language Requirements
- Interviews will take place on an ad-hoc basis should the Course Manager wish to discuss any aspect of your application and for all potentially suitable applicants who require visa sponsorship.
- Applications from **Access to HE Programmes** are welcomed, and will be considered on an individual basis. The most relevant access courses are **Access to Science** and **Access to Engineering**.
- Applications are welcomed from students who do not meet the minimum entry requirements but who can demonstrate sufficient academic ability and motivation via their application and during interview.

Note: Entry Requirements are for guidance only, please check the UCAS website or contact Admissions for further information.

Work Placement

Students spend their 12-month placement with companies such as Jaguar Land Rover, Terex, JCB, Caterpillar, and BAE Systems. Past experience shows many students find graduate employment with their placement company.

You will be helped to find the right role by an engineering placement manager based at Harper Adams.

Accreditation

Accredited by the Institution of Agricultural Engineers (IAgrE) on behalf of the Engineering Council for the purposes of meeting the academic requirements for registration as an Incorporated Engineer.

Careers

Career opportunities in the Automotive sector are outstanding. Our graduates are highly sought-after for their technical knowledge and skills but also their soft skills, essential in a modern engineering environment. BEng students will typically go on to work in design, development and in-service product support roles, delivering solutions or managing engineering teams. Past students have gained employment in multinational manufacturers including Jaguar Land Rover, JCB, Caterpillar and BAE Systems, engineering support services such as HORIBA MIRA and Prodrive, but also small highly specialist companies such as Supacat, Niftylift and Rail-Ability.

What will I study?

Year 1		Year 2		Year 3	Year 4	
The Professional Engineer (E4004HF)	20	Define, Measure, Analyse, Improve and Control (DMAIC) (E5005HF)	20	Placement year	Power Hydraulic Systems (HF)	10
Materials (E4005HF)	20	Design and Validation (E5006HF)	20		Ethics and Sustainability (HF)	10
Problem Solving (E4003HF)	10	Integrated Electronic Systems (E5008HF)	10		Group Project (HF)	20
Electronics, Microcontrollers and Programming (E4002HF)	10	Vehicle Systems (E5012HF)	20		Vehicle Dynamics and Noise, Vibration and Harshness (HF)	20
Actuation (E4001HF)	20	Off Highway Vehicle Mobility and Vehicle Testing (E5011HF)	20		Power Systems (HF)	20
Measurement (E4007HF)	20	Mechanical Science 2 (E5010HF)	20		Honours Engineering Project (HF)	40
Mechanical Science 1 (E4006HF)	20	**Elective**				
		Agri-Tech (E5003HF)	10			
		Autonomous Systems (E5004HF)	10			

The Professional Engineer

Year of study 1
Code E4004HF
Credits 20
Core/option Core
Module contact Mr. Tom Underhill

Engineering relies on three core elements, namely scientific principles, mathematics, and realisation. Scientific principles underpin all engineering, while mathematics is the language used to communicate parameters and to model and optimise solutions. Realisation encapsulates the whole range of creative abilities which distinguish the engineer from the scientist: to conceive, make and actually bring to fruition something which has never existed before - and to create intellectual property, associating invention with commercial or social value. It is, therefore, incumbent on Professional Engineers to develop solutions responsibly – and the ability to develop economically viable and ethically sound sustainable solutions is an essential and distinguishing characteristic of engineering.

In this module, you will:

- Explore the required qualities and requirements of becoming a professional engineer, as well as the range of roles and industries available within the Agricultural, Automotive and Mechanical Engineering sectors. You will use this to inform your early career planning and selection of specialist routes from Year 2.
- Develop your study skills, giving you the tools to help your transition into Higher Education and to build your confidence in information literacy, research and independent learning.
- Learn and apply a range of communication methods – including presentations, 3D Solid Modelling, Technical Drawing.
- Be guided through the production of an exemplar case study portfolio, where you follow a defined process to develop an engineered solution to a constrained mechanical problem – and thus gaining experience as to how the various elements that you study on your degree combine to give you the capability to reliably engineer solutions to given problems.

Materials

Year of study 1
Code E4005HF
Credits 20
Core/option Core
Module contact Mrs Sarah Pickthall

Materials, processing and design are three fundamental engineering disciplines which must be considered together at the start of the design process; it is not possible to design without understanding materials and the way in which they can be shaped and their properties modified.

This module intends to give you a fundamental knowledge of materials, properties and processing techniques and, overall, aims to equip you with the knowledge and confidence to successfully select the most appropriate material for an application as well as understanding how it may be made. Up-to-date materials selection tools and software will be used. It is important to recognise that materials are a finite resource. Therefore, sustainability and supply will also be major themes.

This module will follow a design-led approach and will be structured around case studies and applications. Practical activities will be included to demonstrate properties and processes.

This module also serves to support you with the selection and use of information and literature, so one of the assessment points will be a literature review.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Differentiate between the key design limiting properties of typical engineering materials.
- Explain fundamental material processing and joining techniques and where their use may be appropriate.
- Propose, select and justify appropriate materials and processes for given applications.
- Evaluate information about materials supply challenges.

Problem Solving

Year of study 1
Code E4003HF
Credits 10
Core/option Core
Module contact Mr Greg Rowsell

This module will introduce you to how to approach tackling unfamiliar problems and why engineers follow a systematic approach in order to reliably and repeatedly tackle complex problems. It will ensure that you can practice a range of problem-solving methodologies, tools and techniques.

Through a series of practical problem-solving activities, you will develop discipline in undertaking a structured approach. This will be a hands-on applied process to train you into thinking and behaving as a professional engineer.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Define a given problem with consideration for constraints, needs and options.
- Use industry standard methodologies to identify the root cause for given problems.
- Use a structured approach to solution selection and implementation.

Electronics, Microcontrollers and Programming

Year of study 1
Code E4002HF
Credits 10
Core/option Core
Module contact Mr Sam Wane

Electronic systems are key to modern engineering. You will learn the basics of electrical and electronic systems and programming of microcontrollers applied to real-world engineering systems. Using appropriate theory and practice, you will design circuits, specify and select components and build circuits. Additionally, you will interface microcontrollers to components, and program them to complete a specific task.

You will learn through a mixture of lectures and tutorials, and practical classes where you will apply the theory and develop practical skills.

You will be assessed throughout the module by mini tests which will as inform you of your learning progress, but also by an end of module time constrained computer-based assessment. Additionally, to test your practical skills, you will design and manufacture a functioning circuit.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Design circuits and select suitable components to meet a requirement.
- Interface a microcontroller to components to meet a requirement.
- Write a program for a microcontroller to meet a specific task.
- Build a physical circuit and test it against a specification.

Actuation

Year of study 1
Code E4001HF
Credits 20
Core/option Core
Module contact Mr Graham Higginson

This module provides you with a thorough grounding in the development of mechanisms and technologies for actuation, for example, chain drives, hydraulics, levers, and gears. This is the module that will take you from entrant with no or minimal experience of actuation technology to become experienced and be able to work confidently with actuation technology.

Through a range of teaching and learning techniques, such as lectures, tutorials, practicals, reading, the module will investigate the development of actuation science, methodologies and technologies relevant to agricultural, automotive and mechanical engineering disciplines. The module will be assessed using a blend of mini online tests and coursework, based on the application of actuation technologies relevant to your chosen engineering discipline.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Design mechanisms to translate force, torque and velocity to meet given requirements.
- Select the components required to satisfy the functional performance needs for a given actuation system.
- Explain the operation of fundamental fluid power components and simple systems.

Measurement

Year of study 1
Code E4007HF
Credits 20
Core/option Core
Module contact Mr. Tom Underhill

This module will show you that measurement is not a simple 'one off' activity but is a professional engineering process. The module will develop your ability to use measurement equipment and to record and analyse measurement results. It will develop your ability to complete the whole process of designing, validating and conducting real engineering measurements.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Report measurements using appropriate systems of units and explain their traceability.
- Experimentally determine, analyse and report upon uncertainty of measurement.
- Select and correctly deploy different types of measurement technology.
- Design, conduct and validate an engineering measurement to achieve a specification.

Mechanical Science 1

Year of study 1
Code E4006HF
Credits 20
Core/option Core
Module contact Dr Ian Moorcroft

In this module, you will be introduced to the connection between mathematical tools and techniques, accepted theories of mechanics and the use of software applications in the modelling, analysis and prediction of the behaviour of mechanical systems. These could be mechanisms, components of machines, or moving bodies, on any scale. It uses a combination of approaches including practical, theoretical and software. A regular series of mini-tests will check your understanding and progress, with a larger applied problem-based assessment at the end. This module is essential to your understanding of a wide range of other subjects at this level and further on in your course.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Recognise the value of theoretical methods to predict real-world behaviour of mechanical systems.
- Select and apply a range of mathematical techniques to solve static and dynamic problems.
- Use physical and software resources to investigate, analyse and communicate solutions to engineering scenarios.

Agri-Tech

Year of study 2
Code E5003HF
Credits 10
Core/option Core

Mechanised agriculture is seeing a shift toward utilising Agri-Tech for data acquisition, management, insight and implementation to ensure food production within planetary boundaries. You will be introduced to key sensing and data tools commercially available to farms and explore how this is practically implemented through mechanisation and automation. You will engage with a range of subject experts from both academic and industry in a series of lectures, discussions and practical demonstrations. You will propose an economically and agronomically viable Agri-Tech solution for a farm case study as the module assessment.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Critically appraise the latest commercial precision farming technologies and their limitations.
- Review the findings of published research, in terms of potential implications for agriculture.
- Financially model farming technology for a specific application to assess its viability.

Define, Measure, Analyse, Improve and Control (DMAIC)

Year of study 2
Code E5005HF
Credits 20
Core/option Core
Module contact Mr Greg Rowsell

Define, Measure, Analyse, Improve and Control, or DMAIC as it is widely known, is a data-driven improvement process used in all kinds of businesses, in projects and in design.

This module will provide you with the tools and methods to tackle problems and projects in a structured way through the aforementioned phases. This module will incorporate aspects of measurement, experimentation, analysis, processes, productivity, quality, lean and waste.

Learning will be through a mixture of lectures and structured practical activities, and you will be assessed by a review, an experiment and a manufacturing scenario.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Discuss the requirement for, and the impact of, a defined and data-led process for continuous improvement and problem-solving.
- Collect, process and assess the quality of data.
- Select and apply appropriate analysis tools to a data set.
- Propose and evaluate improvement and control plans.

Autonomous Systems

Year of study 2
Code E5004HF
Credits 10
Core/option Core
Module contact Dr Sven Peets

An automated system is an integration of sensors, controls, actuators and programming designed to perform a function with minimal or no human intervention. You will learn how the integration of these is applied in the real world.

Using appropriate theory and practice, you will design an automated system, specify and select components and demonstrate its functionality.

You will apply the theory and develop practical skills through a mixture of lectures, tutorials, and practical laboratory work.

You will be assessed by a group presentation, where you will investigate a commercial system. You will design, manufacture, and demonstrate a functioning automated system.

Students who successfully complete this module will be able to:

- Critically appraise commercial automated systems.
- Review the components and control of automated systems.
- Demonstrate the ability to implement an automated system.

Design and Validation

Year of study 2
Code E5006HF
Credits 20
Core/option Core
Module contact Mr James Croxford

The design and validation involved in the engineering of a product is key to its success. As well as the ability to rigorously apply engineering theory to an application, a professional engineer also needs a good understanding of the wider world in which their product will operate, and of the customer who will purchase it.

In this module, you develop your professionalism and wider communication and teamwork skills, by following a structured design process to deliver a product that meets a customer brief. You will design and validate a product from beginning to end, improving your capability in defining a problem, utilising specialist methodologies and techniques, working in a team, and liaising with customers and technical specialists.

This module will also provide the opportunity for self-reflection and professional development in preparation for your placement year, where applicable.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Identify requirements and constraints within a client brief, in order to create a product design specification
- Engineer a product to meet a product design specification
- Develop a product to meet 'design for manufacture' and 'design for assembly' constraints.
- Plan and execute a test, to evaluate a design against a product design specification
- Reflect on feedback to guide the creation of a personal development plan for continuing professional development

Integrated Electronic Systems

Year of study 2
Code E5008HF
Credits 10
Core/option Core
Module contact Mr Sam Wane

In many engineering solutions, there is a combination of electronic control systems and mechanical systems forming an integrated system. You will learn about electronic control, and the selection of sensors and actuators to form an integrated system whilst developing algorithms and associated programmes to achieve a required function.

You will learn about integrating microcontroller systems through lectures covering the theory and tutorials to put the applications into perspective. Additionally, you will complete practical exercises on algorithm and programme development.

You will be assessed by a series of mini tests throughout the module, and an end of module piece of coursework.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Select system components and integrate them into a control system.
- Develop and implement an algorithm for a control system to achieve a given task.

Vehicle Systems

Year of study 2
Code E5012HF
Credits 20
Core/option Core
Module contact Mr David Clare

A complete functioning vehicle is actually a combination of individual systems and subsystems. In this module, you will learn what the systems industry typically breaks a vehicle down into. You will then look in more depth at each system, their function within a vehicle, their characteristics and specification, how they work, and any interactions with other systems.

You will learn through a series of lectures, tutorials and vehicle-based practicals.

Throughout the module, you will keep a portfolio of the tutorial and practical-based activities which will form part of your assessment. Part way through the module you will have to produce an assessed presentation. Your final assessment will be a piece of coursework to demonstrate your deeper understanding of Vehicle Systems.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Explain what the main systems are that make up a vehicle and interactions between them.
- Describe how vehicle systems work and explain how they meet vehicle requirements.
- Calculate vehicle and system parameters to meet vehicle requirements.
- Summarize the future global challenges affecting vehicle sustainability.

Off Highway Vehicle Mobility and Vehicle Testing

Year of study 2
Code E5011HF
Credits 20
Core/option Core
Module contact Mr David Clare

Off highway mobility refers to how well a vehicle can travel over surfaces other than hard roads. During this module, you will learn how vehicles interact with off road surfaces such as soil and rocks, how vehicle characteristics affect their mobility, and how terrain characteristics affect their trafficability. Vehicles need to operate all around the world, so you will learn about global factors affecting vehicle operation such as climate. You will also learn about other vehicle-soil interactions such as how construction machines break up/push/dig soil.

When designing and developing vehicles it is important to be able to measure their performance. You will learn about how to select suitable sensors for testing vehicle performance, interface them with computer-based data logging equipment, then collect and analyse data.

You will learn through a mixture of lectures and tutorials, and practical classes where you will apply the theory and develop practical skills.

Your first assessment will be by submitting a piece of coursework comparing independent research to practical test work. Your final assessment will be a time-constrained applied assessment.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Explain what vehicle characteristics affect vehicle mobility.
- Explain what terrain properties affect trafficability.
- Predict vehicle performance based on vehicle characteristics and terrain properties.
- Select suitable instrumentation for measuring vehicle performance.

Mechanical Science 2

Year of study 2
Code E5010HF
Credits 20
Core/option Core
Module contact Dr Ian Moorcroft

In this module, you will develop your knowledge of mechanical systems which will give you the ability to perform more realistic modelling to bring the theoretical calculations much closer to those expected in practice. You will learn to analyse critical applications, for example, buckling theory; pressure vessels; fatigue failure, and determine dynamic behaviour, for example, second order response; imbalanced dynamic forces; and transmission of vibrations. A regular series of mini-tests will check your understanding and progress, with a larger applied problem-based assessment at the end. This module is essential to your understanding of a wide range of other subjects at this level and further on in your course.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Apply knowledge of static and dynamic systems to evaluate a range of multi-factor mechanical engineering problems.
- Interpret quantitative data to determine the characteristics and response of mechanical systems.
- Solve a complex mechanical scenario through the selection and application of appropriate theoretical analysis and simulation methods and present a justified solution.

Placement year

Year of study 3
Core/option Core

Read our dedicated Placement Learning pages for information on the many benefits of the placement year.

Power Hydraulic Systems

Year of study 4
Code HF
Credits 10
Core/option Core
Module contact Mr Graham Higginson

Through your evaluation and simulation of applied complex hydraulic systems, you will develop specifications and select hydraulic components in relation to the function and operation of many agricultural and off-highway vehicles. Through a range of teaching and learning techniques, such as, lectures, tutorial, seminars, practicals, and reading, the module will explore further applications of hydraulics in agricultural and off-highway systems for their function, operation and travel. The module will assess your learning and knowledge through a case study where you will evaluate and simulate hydraulic systems and specify suitable components to meet performance requirements.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Evaluate the operational requirements of hydraulic systems.
- Design and simulate complex hydraulic systems.
- Develop specifications and select hydraulic components to suit complex hydraulic applications.

Ethics and Sustainability

Year of study 4
Code HF
Credits 10
Core/option Core
Module contact Mr Parmjit Chima

In order to be a complete professional engineer you will need to have a mature consideration of ethics and sustainability. The engineering council requires professional engineers to maintain and promote a high ethical standard and challenge unethical behaviour.

You will be shown how to construct and evaluate ethical arguments and you will be shown a wide variety of ethical issues in modern society. This will also develop your ability in ethical reasoning which is the ability to identify, assess, and develop ethical arguments from a variety of ethical positions. This will be developed during taught sessions where you will be encouraged to review and critically evaluate case studies and emerging ethical issues.

You will be encouraged to consider sustainability in its broadest sense – as applied to the environment, business, design and society. This is of paramount importance as engineers must provide solutions that use energy and resources sustainably.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Construct and evaluate ethical arguments in order to consider the wider impact of decisions on society.
- Evaluate the environmental impact of decisions and business sustainability.
- Apply the legal principles of intellectual property and the neighbour principle to product design and development.
- Evaluate the ethical impact on business and sustainability of quality management systems and continuous improvement including product and material lifecycle and the circular economy.
- Evaluate the impact of security considerations from international security to corporate data theft.

Group Project

Year of study 4
Code HF
Credits 20
Core/option Core
Module contact Mr Greg Rowsell

Engineers are expected to be able to work effectively both independently and as a member of a team in the delivery of solutions to agreed standards and deadlines. Engineers, to be effective, must be able to study a given situation and be able to calculate delivery feasibility against time and resource availability. It is also a normal expectation that engineers are required to resolve complex problems in parallel to other work and to work effectively with colleagues.

You will have gained group work experience in prior study and during the industrial placement period (or equivalent). This module aims to provide you with the opportunity to demonstrate your capability of working as a member of a project team having joint and several responsibilities for the delivery of the project, and to demonstrate, in an applied context: an appropriate depth and breadth of technical knowledge and management capability; professional engineering behaviours; and an understanding of project delivery risks.

Each group project is generally sourced from companies within the engineering industry - companies typically provide background information, details of the problem, and some references for the team at the outset. Project deliverables and success criteria will be negotiated between the client and team early in the project.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Devise, negotiate and agree deliverables in response to a given project.

- Plan and manage the delivery of a programme of work to deliver stakeholder value.
- Conclude the delivery of project deliverables in relation to stakeholder satisfaction
- Appraise personal and team performance

Vehicle Dynamics and Noise, Vibration and Harshness

Year of study 4
Code HF
Credits 20
Core/option Core
Module contact Mr David Clare

Vehicle Dynamics is the term given to how a vehicle handles and absorbs road irregularities. You will learn how steering and suspension systems and other vehicle properties influence a vehicle's ability to run in a straight line or corner predictably. Additionally, you will learn how the suspension can be designed and tuned to improve passenger comfort when the vehicle is travelling over irregular surfaces.

NVH is a common term used in the automotive industry, and stands for **noise, vibration and harshness**. You will learn what causes NVH and how it can be reduced or attenuated to improve vehicle refinement, and so passenger comfort.

You will learn through a mixture of lectures to learn the theory, tutorials to reinforce the theory and put its application into perspective, and computer modelling-based practicals to explore further the effects of changing vehicle parameters.

For the first assessment you will create a suspension design to meet target requirements. The assessment will be based on a presentation of the design. The final assessment will be by coursework covering the performance analysis and improvement of a vehicle dynamics and NVH system.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Interpret vehicle dynamics and NVH targets.
- Apply theory to analyse the effects of technologies on vehicle dynamics and NVH.
- Develop appropriate systems to meet vehicle dynamics targets.
- Analyse vehicle dynamics and NVH data to assess performance and then suggest improvements.

Power Systems

Year of study 4
Code HF
Credits 20
Core/option Core
Module contact Mr David Clare

Vehicles both on road and off road have multiple complex systems for storing energy, producing power and transmitting power to different functions on the vehicle. Building upon previous knowledge, you will develop a deeper understanding of how power can be generated and transmitted.

Using vehicles available at Harper and real-world examples, you will analyse duty cycles to identify power flow for a particular task. Following on from this, you will propose suitable power sources and transmission systems to balance work capacity and efficiency targets.

You will learn through a series of lectures and tutorials covering theory and applications of power systems, and computer practicals to develop your modelling and analysis skills. There will also be practical demonstrations to help reinforce your theoretical and application knowledge. There will also be an expectation that you will do independent research to increase and demonstrate your depth of knowledge as part of coursework.

You will undertake two assessments, one covering a vehicle/machine duty cycle, analysing the energy and power flow, and a final assessment investigating and proposing energy efficiency improvements for the given duty cycle.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Analyse the duty cycle for a mobile machine to establish the power flow to individual functions.
- Explain the characteristics and suitability of a range of power sources and transmission systems for a given application.
- Evaluate a range of power sources and transmission systems for a given application and make recommendations for optimising performance and efficiency.
- Select and apply appropriate modelling tools for the analysis and evaluation of performance.

Honours Engineering Project

Year of study 4
Code HF
Credits 40
Core/option Core
Module contact Mr Greg Rowsell

The ability to resolve complex problems is a fundamental capability of a professional engineer. Fundamental elements of this capability include: being able to define a problem; being able to select and correctly apply relevant tools, techniques, methods and practices in the resolution of the problem; and the ability to critically evaluate the effectiveness of the applied process.

Successful completion of your Honours Engineering Project will demonstrate your motivation, resilience, and ability to select and apply appropriate methodologies in the resolution of an engineering problem selected from your chosen field of specialisation. The Honours Engineering Project functionally assesses in a holistic way your ability to engage with and deliver a successful body of work and as such forms the capstone activity for the curriculum.

Intended Learning Outcomes

Students who successfully complete this module will be able to:

- Select, justify and use appropriate tools and techniques to define and constrain an engineering problem for resolution.
- Plan and utilise appropriate methods to ethically and sustainably deliver a solution to the engineering problem.
- Conduct a technical evaluation of the project outcomes in relation to the satisfaction of the project requirements.
- Conduct a reflective evaluation of the project outcomes in relation to the methods and practices adopted.
- Present and defend project conclusions and recommendations to a technical and non-technical audience