



UK | DUBAI | MALAYSIA

BE FUTUREMADE

ENGINEERING

About Our Programmes

MEng (HONS) CHEMICAL ENGINEERING

MEng: KPT/JPS (R/524/6/0041) (FA5107) 11/26

Intake: September, January

Chemical engineering is a broad-based discipline combining mathematics and science, which has an important – though often hidden – impact on society. It is about transforming raw materials into valuable and desirable products, creating durable products and services, and producing the enabling technology and know-how for a sustainable future.

Chemical engineers' input is valuable at every stage of a project from the initial idea through to the product emerging at the end of the line and even to the market. Chemical engineers are highly valued by employers for their all-round skills and job prospects are excellent. Graduates are employed in many sectors from fine chemicals and food products to utility suppliers, polymers and the oil industry.

This degree will allow you to understand the chemical and physical principles underlying chemical engineering concepts, and help you to cultivate the ability to apply your skills to real, practical engineering problems. It will also develop your transferrable skills in communication, team-working, industrial and commercial awareness and career management.

This programme is accredited by the Malaysian Qualifications Agency (MQA). Our MEng programme is accredited and recognised by the Board of Engineers Malaysia (BEM). MEng is internationally recognized and accredited by the Institute of Chemical Engineers (IChemE). Our MEng qualification is designed to satisfy the academic requirements set by the Engineering Council UK for registration as a Chartered Engineer (CEng) status.



YEAR 1

Covers important themes focus on understanding of the movement of fluids, mass and energy balance, heat transfer and how materials behave. Principal components include Fluid Mechanics, Heat Transfer and Thermodynamics. Process modelling is introduced, and a mini group-based design project consolidates the topics covered so far.

YEAR 2

Provides opportunities to analyse key operations in the industry, particularly the processing and separation of gases and liquids. In parallel, there are courses looking at chemical reactor theory, how processes are controlled and the prediction of physical behaviour. Biotechnology fundamentals are introduced in the Bioprocessing course, and material on Safety, Sustainability and Economics is consolidated in a multi-disciplinary group-based project.

YEAR 3

A central theme is the advanced analysis of key processing operations and their control. Specialist topics include Particle Technology, Plant Management and Economics, Sustainability, and Process Integration. The major capstone group-based technical design project is also undertaken at this stage. Students are required to undertake a compulsory industrial training in the summer for industrial engineering exposure.

YEAR 4

Optional courses from a range of specialist engineering subjects such as low carbon solutions, renewable energy technologies, bioprocessing/biotechnology, brewing & distilling and oil & gas technology are studied in this year. Two major projects are taken in this year: an in-depth individual research project; and an enhanced group-based design project, where students have the opportunity to demonstrate their skills in process design and commercial awareness, culminating in a board-style presentation to senior industry leaders.

MEng (HONS) CIVIL ENGINEERING

MEng: KPT/JPS (R/526/6/0108) (FA6195) 08/27

Intake: September

The programme covers the main civil engineering disciplines of structures, geotechnics, water, environmental, highway and project management that equips students with the key skills and knowledge required to become chartered civil or structural engineers.

The core curriculum begins with fundamentals in all main subject areas, concentrating on analysis and materials behaviour followed by increasing focus on design and management in the specialisation years. Throughout, there is also an emphasis on the personal development of students within the professional environment. The career prospects for our graduates includes these high demand sectors for civil engineers namely the construction, utilities, energy and transportation sectors.

This programme is internationally accredited by the Joint Board of Moderators consisting of the Institution of Civil Engineers (ICE), Institution of Structural Engineers (IStructE), Chartered Institution of Highways and Transportation (CIHT) and Institute of Highway Engineers (IHE) on behalf of the Engineering Council UK. Our MEng qualification is designed to satisfy the academic requirements set by the Engineering Council UK for registration as a Chartered Engineer (CEng) status. Our MEng programme is also recognised by the Board of Engineers Malaysia (BEM) and fully accredited by the Malaysian Engineering Accreditation Council (EAC).



YEAR 1

- Analysis of Determinate Structures
- Hydraulics and Hydrology A
- Surveying and GIS
- Mathematics for Engineers and Scientists 3
- Civil Engineering Materials
- Stress Analysis and Element Strength
- Design Studies A - Problem Solving
- Statistics for Science

YEAR 2

- Indeterminate Structures
- Geology and Soil Properties
- Design of Steel Elements
- Transport Design, Infrastructure and Society
- Hydraulics and Hydrology B
- Geotechnics A - Intro to Soil Mechanics
- Design of Concrete Elements
- Environmental Technology and Management

YEAR 3

- Geotechnics B - Soil Strength
- Civil Engineering Design Project
- Foundation Engineering
- Industrial Training

Plus 5 optional courses related to structural engineering, transportation engineering and water engineering.

YEAR 4

- Civil Engineering Professional Design Project
- Dissertation 1 Civil Engineering Discipline
- Dissertation 2 Civil Engineering Discipline

Plus 4 optional courses related to structural engineering, water engineering and project management.

MEng (HONS) ELECTRICAL AND ELECTRONIC ENGINEERING

MEng: KPT/JPS (R/523/6/0265) (FA6194) 08/27

Intake: September

Electrical and electronic engineering plays a significant role in modern society. From the electricity that powers our lives to the mobile phones that enable communication and provide entertainment, the technologies around us inspire wonder. Highly trained engineers are needed to specify and design such systems and devise electronic engineering solutions for future challenges such as electric transportation, renewable energy generation, robot systems and medical diagnostics. A Bachelor of Engineering degree can provide access to exciting global opportunities.

This programme is accredited by the Malaysian Qualifications Agency (MQA). Our MEng qualification is designed to satisfy the academic requirements set by the Engineering Council UK for registration as a Chartered Engineer (CEng) status.

Chartered engineers enjoy excellent prospects, enhanced employability and high salaries.

Our MEng programme is accredited and recognised by the Board of Engineers Malaysia (BEM). Graduates from this programme are eligible for registration with BEM under the Electrical Discipline.

For registration by the Board of Engineers Malaysia (BEM), an additional year to complete the MEng programme is required plus a minimum of 10 weeks industrial placement.



YEAR 1

- Circuits and Analysis
- Digital Design and Programming
- Mathematics for Engineers and Scientists 3
- Sustainable Development and Engineering Management
- Mathematics for Engineers and Scientists 4
- Intro Electricity and Magnetism
- Electrical Power and Machines
- Computer Architecture and Embedded Systems

YEAR 2

- Semiconductor Electronics
- System Project
- Engineering Mathematics and Statistics
- Time and Frequency Signal Analysis
- Signals and Systems
- Electrical Energy Systems
- Electromagnetism

YEAR 3

- MEng Group Project 1
- Professional and Industrial Studies
- MEng Group Project 2
- Industrial Training

Students undertake a compulsory industrial training placement after completing Year 3.

Optional and elective courses available for Year 3 include:

- Linear Control
- Digital Signal Processing
- Advanced Analogue Electronics
- Sustainable Energy and Power Systems
- Communication Devices and Systems

YEAR 4

MEng students do Project 1 and Project 2 plus four optional courses

Optional and elective courses available include:

- Electrical Power System
- Digital Signal Processing
- Distributed Generation
- Renewable Generation and Conversion

Students take a total of eight core and optional courses as well as projects each year

MEng (HONS) MECHANICAL ENGINEERING

MEng: KPT/JPS (R/521/6/0092) (FA5108) 11/26

Intake: September, January

Mechanical engineers play key roles in every industrial sector which can range from transportation, energy, and aerospace to packaging, manufacturing and maintenance, processing, building and infrastructure. Today, this is even more so with the increasing reliance in machinery and automation across all sectors across the globe.

The job scope of Mechanical Engineers offers varied and exciting work environment where many skills are brought together to create innovative products and designs of systems and machineries.

The degree aims to produce graduate engineers who are able to meet the challenging needs of today's and tomorrow's industries and society. The curriculum is rigorous to ensure solid foundation in current mechanical engineering principles enriched with industrial relevance and group work.

This programme is accredited by the Malaysian Qualifications Agency (MQA). MEng are internationally recognised by the Institute of Mechanical Engineers (IMechE). Our MEng qualification is designed to satisfy the academic requirements set by the Engineering Council UK for registration as a Chartered Engineer (CEng) status.

Chartered Engineers enjoy excellent prospects, enhanced employability and high salaries. If you prefer to graduate with a BEng after three years of study, your degree will provide partial fulfilment of the necessary academic requirements for Chartered Engineer status.

Our MEng programme is accredited and recognised by the Board of Engineers Malaysia (BEM) and fully accredited by the Malaysian Engineering Accreditation Council (EAC).



YEAR 1

- Design and Manufacture 2
- Electrical Power and Machines
- Mathematics for Engineers and Scientists 3 & 4
- Mechanics of Materials A
- Dynamics
- Fluid Mechanics A
- Thermodynamics A

YEAR 2

- Sustainable Development and Engineering Management
- Design and Manufacture 3 and 4
- Mechanics of Materials B
- Fluids Mechanics B
- Vibration Analysis & Control Engineering
- Thermodynamics B
- Automotive Technologies 1 (Optional)
- Energy Studies (Optional)

YEAR 3

- Engineering Design
- Engineering Manufacture
- Group Project 1

Optional courses:

- Fluids 1
- Heat Exchangers and Heat Transfer
- Dynamics 1
- Advanced Mechanics of Materials 1
- Fluids 2
- Advanced Thermodynamics Applications
- Dynamics 2
- Robotic Mechanical Systems

Students undertake a compulsory industrial training placement.

YEAR 4

- Failure Accident Analysis
- Group Project 2 and 3
- Professional and Industrial Studies
- Computational Fluid Dynamics with Heat Transfer
- Specialist Engineering Technologies 2
- Individual Project

Students take a total of eight courses per year including core and optional courses/projects.

MSc ADVANCED MECHANICAL ENGINEERING

KPT/JPS (N/521/7/0182) (MQA/PA14181) 01/26

Intake: September

This programme aims to develop the knowledge and skills of a bachelor's-level graduate mechanical engineering degree to master's level through advanced teaching, design work and research. It provides an opportunity for candidates from a different engineering background to develop key mechanical engineering knowledge and skills required for their professional development. A key objective of the programme is to be an accredited route to becoming a chartered engineer.

This programme makes use of master's-level courses in the Energy Sciences and Manufacture and Design field, complemented with specialist courses from relevant MSc courses offered by the Institute. There is a growing need for an advanced mechanical engineering programme from our industry partners and this programme has been specifically developed to meet this need and to encourage students into further learning.

Core courses

- Professional and Industrial Studies
- Computational Fluid Dynamics with Heat Transfer
- Failure and Accident Analysis
- Specialist Engineering Technologies 2
- Critical Analysis and Research Preparation
- Masters Dissertation

Optional courses (select three)

- Fluids 1
- Advanced Mechanics of Materials
- Dynamics 1
- Heat Transfer and Heat Exchangers
- Renewable Energy Technologies
- Engineering Design
- Fluids 2
- Dynamics 2
- Advanced Thermodynamic Applications
- Robotic Mechanical Systems

MSc RENEWABLE ENERGY ENGINEERING

KPT/JPS (R2/522/7/0030) (MQA/FA2721) 02/28

Intake: September, January

This programme is a specialist programme with a clear Mechanical Engineering focus. It aims to equip students with a wide-ranging, yet detailed overview of renewable energy resources and their exploitation, as well as the socio-economic and environmental impacts of related activities. To do this, the programme provides a broad introduction to current energy issues and specialist knowledge and skills to analyse, appraise or design renewable energy systems or equipment.

This programme is an advanced MSc in the rapidly expanding area of renewable energy engineering. It is aimed at students wishing to develop critical understanding of the significant changes taking place in the energy industry due to the development and integration of wind, marine, biomass and solar technologies. The programme will enable graduates to develop and implement creative solutions to the problems encountered in renewable energy capture, conversion, storage and management.

Core courses

- Foundations of Energy
- Renewable Energy Technologies
- Economics of Renewable Energy Engineering
- Advanced Renewable Energy Engineering
- Demand Management and Energy Storage
- Environmental Impact Assessment
- Critical Analysis and Research Preparation
- Master's Dissertation

Optional courses (select one)

- Electrical Power Systems
- Heat Transfer and Heat Exchangers
- Computational Fluid Dynamics with Heat Transfer

MSc PETROLEUM ENGINEERING

KPT/JPS (R2/0711/7/0001) (MQA/FA3474) 06/28

Intake: September, January

Petroleum Engineering at Heriot-Watt University is ranked 12th in the world and 3rd in the UK, and 1st in the UK for employer reputation (QS World University Rankings by subject 2023). The programme consists of lectures, project work and field trip, encompassing a wide range of petroleum engineering fundamentals, pertinent to the modern petroleum industry. Project work provides an opportunity for ideas and methods, assimilated through lectures and tutorials, to be applied to real field evaluation and development design problems. The courses are applied in nature and have been designed so that graduates are technically well prepared and have a sound knowledge of the industry. These courses provide specialist education tailored to the requirements of the upstream petroleum industry. The relevance of this education combined with careful selection of candidates has encouraged oil and oilfield service companies to target Heriot-Watt for recruitment of graduates over the years.

SEMESTER 1

Core courses

- Geoscience for Petroleum Engineering
- Reservoir Engineering
- Drilling Engineering
- Formation Evaluation

SEMESTER 2

Core courses

- Petroleum Economics
- Production Technology
- Reservoir Simulation
- Reservoir Engineering - Well test Analysis

SEMESTER 3

Core courses

- Field Development Project
- Individual Project

Proud HWUMANS



Sin Leigh-Anne

MEng Chemical Engineering with Oil and Gas Technology (Class of 2018), Pre-commissioning & Commissioning Engineer at JGC Corporation, China

2 years in Malaysia + 2 years in Edinburgh

With Heriot-Watt University Malaysia's tremendous help and support, engaging students with industry speakers, and offering practical experiences, I landed in a dream position in one of the best EPC contractors within the oil and gas industry. I have had opportunities to travel the world and to work on multi-national projects and excelling in what I do.



Peter Ratray

MEng Mechanical Engineering (Class of 2021), Associate Mechanical Engineer at QuantuMDx, UK

1 year in Edinburgh + 3 years in Malaysia

The option to seamlessly transfer between the UK and Malaysia campuses at any point during my engineering degree has allowed me to develop my soft skills by working with students on the other side of the world. I was able to do my first year at the Edinburgh campus before doing the rest of my degree at the Malaysia campus in Putrajaya.



Kevin Lam

MEng Chemical Engineering with Oil and Gas Technology (Class of 2020), Instrumentation and Controls, Graduate Engineer at BP PLC, Scotland

Throughout my time with the University, I've been exposed to a curriculum geared towards the application of knowledge, giving me a holistic understanding of the underlying theory, whilst appreciating its application in a practical manner.

HOW TO APPLY



Heriot-Watt
University
Malaysia accepts
applications all
year round.

APPLY ONLINE

You can apply online for our programmes at <https://bit.ly/HWApply>. You must create an account to use the online application form. You don't have to complete the application in one session; you can save the information you have already entered and return to complete it at a later date. There is a help facility on each page of the online form.

SUPPORTING DOCUMENTS

Please remember to upload supporting documents so that we can make a decision on your application. This includes proof of English language proficiency and original or certified copies of academic transcripts.

Please refer to the supplemental item checklist on the Online Application form:

▶ <http://bit.ly/hwumaccount>

See website for details of fees:

▶ www.hw.edu.my/fees



Scan to Navigate
to Our Location

Follow Us

 /hwumalaysia

 @hwumalaysia




 /bit.ly/hwumvideos

 heriotwattmalaysia

www.hw.edu.my

Open for consultation:
Monday to Friday (9am - 5pm) and Weekends (10am - 4pm) except Public Holidays

Heriot-Watt University Malaysia (DUK007(WP))
No. 1, Jalan Venna P5/2, Precinct 5, 62200 Putrajaya

 +603-8894 3888  +6012-651 2599  HWUM@hw.ac.uk

