

Engineering



The University of
Nottingham

UNITED KINGDOM · CHINA · MALAYSIA

Faculty of Engineering

Foundation & Undergraduate Programmes

- Department of Chemical & Environmental Engineering
- Department of Civil Engineering
- Department of Electrical & Electronic Engineering
- Department of Mechanical, Materials and Manufacturing Engineering

<http://www.nottingham.edu.my/engineering>

CONTENTS



WELCOME	2
FACULTY OF ENGINEERING	3
DEPARTMENT OF CHEMICAL & ENVIRONMENTAL ENGINEERING	5
DEPARTMENT OF CIVIL ENGINEERING	9
DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING	11
DEPARTMENT OF MECHANICAL, MATERIALS AND MANUFACTURING ENGINEERING	15
STUDENTS' ACHIEVEMENTS	18

WELCOME



This guide describes the foundation and undergraduate degree courses offered by the Faculty of Engineering at The University of Nottingham Malaysia Campus.

The foundation programme is a pre-University level course designed for students who wish to study engineering. The faculty offers a range of degree programmes across the engineering specialisms of chemical engineering, civil engineering, electrical and electronic engineering, mechanical engineering and mechatronic engineering. In addition, all the departments offer taught MSc programmes as well as research degrees. All of our programmes focus on enabling students to gain a high level of knowledge and understanding in their chosen area and to become independent learners equipped to take on important roles in their future employment.

Whatever your interests may be, you can be sure that a University of Nottingham qualification will put you on a firm footing for your chosen career pathway.

I am sure you will find the information you require in this Faculty guide but if you still have any questions please take a look at our website, contact us or come and visit us at the Malaysia Campus.

Professor Ian Harrison
Dean
Faculty of Engineering

FACULTY OF ENGINEERING



It is difficult to overstate the importance of engineering in our rapidly evolving world. Engineering solutions are all around us - portable devices, clean water and healthcare products that enable us to live longer and, arguably, better lives. If we're to continue to innovate then we need the right people. People who can challenge, people who can create and most of all, people who can apply new knowledge in new products and new processes. These are just some of the things you'll learn in one of our many engineering courses.

Nottingham's reputation for excellence in engineering rests on the highest standards of teaching and learning, underpinned by internationally leading research. Top quality students are recruited and taught by experienced academic staff. This expertise is reflected in our teaching and research, providing a unique advantage to our courses which are respected and valued by industry and commerce worldwide.

According to RAE 2008 data, 95% of research in engineering at The University of Nottingham is of international quality, with over 75% defined as 'world-leading' or 'internationally excellent'. The results place us in the UK's top five universities for engineering.

Engineering programmes offered within the Faculty of Engineering, Malaysia Campus are headed by leading academics who have experience of the UK Higher Education System. They belong to the Department of Chemical & Environmental Engineering, Department of Civil Engineering, Department of Electrical & Electronic Engineering, Department of Mechanical, Materials and Manufacturing Engineering and Department of Applied Mathematics. All these Departments have been assessed for teaching quality by the UK Quality Assurance Agency (QAA), and all have been given the highest grading of "excellent".

The Malaysia Campus offers 3-year BEng and 4-year MEng undergraduate degree programmes based on a modular system. The third year of all BEng programmes and the third and fourth year of the MEng programmes offer a range of modules that allows the individual to tailor their degree according to their interest while continuing to study the essential modules needed for recognition by the engineering institutions. Students can opt for either the BEng or MEng programme at the end of the second year, subject to their academic performance.

Students on the MEng programme are required to carry out at least one 12-week industrial placement during the long vacations following Year 2 and Year 3. The faculty gives full support to help students find suitable placements.

Undergraduate engineering programmes taught at the Malaysia Campus are undifferentiated from those taught in the UK, except Mechatronics which is only taught at Malaysia Campus. These programmes are accredited by the UK Engineering Council, through the relevant professional institution. BEM accreditation for the MEng courses is subject to re-approval, and all BEng courses are accredited by MQA. Following relevant industrial experience students who graduate with MEng can apply directly for Professional Engineer status. Students with a BEng degree require further learning to achieve Professional Engineer status.

Undergraduate Engineering degree programmes offered at the Malaysia Campus are as follows:

Department of Chemical & Environmental Engineering

- BEng (Honours)/MEng (Honours) Chemical Engineering
- BEng (Honours)/MEng (Honours) Chemical Engineering with Environmental Engineering

Department of Civil Engineering

- BEng (Honours)/MEng (Honours) Civil Engineering

Department of Electrical & Electronic Engineering

- BEng (Honours)/MEng (Honours) Electrical Engineering
- BEng (Honours)/MEng (Honours) Electrical & Electronic Engineering
- BEng (Honours)/MEng (Honours) Electronic Engineering
- BEng (Honours)/MEng (Honours) Electronic & Communications Engineering
- BEng (Honours)/MEng (Honours) Electronic & Computer Engineering
- BEng (Honours)/MEng (Honours) Mechatronics Engineering

Department of Mechanical Engineering

- BEng (Honours)/MEng (Honours) Mechanical Engineering

FNM4 Foundation in Engineering

KPT/JPS (F3-K026) 4/11

The Foundation in Engineering programme is offered by Faculty of Engineering which feeds into the Engineering degree programmes.

The nature of the assessment depends upon the individual module but is mainly based on lab work, assignments and examinations.

Course Structure

Semester Module

- 1
 - Foundation Algebra
 - Basic Engineering Mechanics A
 - Chemistry A
 - Light, Waves and Electrons A
 - Information Technology and Design
 - English Language and Study Skills 1
- 2
 - Mathematical Techniques
 - Calculus 1
 - Thermal Science A
 - Computer Methods
 - Electricity and Magnetism A
 - Study Skills
- 3
 - Applied Algebra for Engineers
 - Calculus 2
 - Introduction to C Programming
 - Digital Media
 - + 2 approved optional modules from the following:
 - Basic Engineering Mechanics B
 - Chemistry B
 - Electricity and Magnetism B
 - Light, Waves and Electrons B
 - Thermal Science B

Undergraduate Progression

For progression into the undergraduate programmes at the Schools of Engineering, students must obtain at least 40% in every module.

Students who have successfully completed the Foundation in Engineering programme can choose to enter the following undergraduate programmes at Malaysia Campus:

BEng (Honours)/MEng (Honours)

- Chemical Engineering
- Chemical Engineering with Environmental Engineering
- Civil Engineering
- Electrical & Electronic Engineering
- Electrical Engineering
- Electronic Engineering
- Electronic & Communications Engineering
- Electronic & Computer Engineering
- Mechanical Engineering
- Mechatronic Engineering

Entry Requirements

SPM: A minimum of 6 B's including Mathematics, Additional Mathematics, and Physics (or Chemistry for Chemical Engineering), excluding Islamic Studies and Moral Studies.

GCE/IGCSE: A minimum of 6 B's including Mathematics, Additional Mathematics, and Physics (or Chemistry for Chemical Engineering), excluding Religion and National Language.

UEC: 6 B's including a minimum of Grade B in Mathematics and Physics (or Chemistry for Chemical Engineering).

SAM/AUSMAT/HSC: ATAR 80 including Mathematics, Physics and Chemistry.

Other equivalent qualifications will be considered on a case-by-case basis.

English Language Requirements

SPM: Grade B

GCE O-Level (1119): Grade C

GCE/IGCSE: Grade C

UEC: Grade B3

IELTS: 5.5 (no less than 5.0 in any element)

TOEFL (PBT): 523

TOEFL (iBT): 71



DEPARTMENT OF CHEMICAL & ENVIRONMENTAL ENGINEERING



Chemical Engineering can be defined as the processing of materials on a commercial scale. This involves the integration of engineering principles and applications with chemistry and other sciences. Chemical Engineers work in a huge range of companies manufacturing products as diverse as petroleum products, bulk chemicals, food, drinks, pharmaceuticals, synthetic fabrics and fine chemicals. Their job is to transform efficiently and safely raw

materials into useful products with the minimum environmental impact. Chemical Engineering has been established at The University of Nottingham since 1961. We have a long history of collaboration with industry, and graduates gain jobs with major companies. The same programmes are available in the UK and at the University of Nottingham Malaysia Campus.

H810 BEng (Honours) / H800 MEng (Honours) Chemical Engineering

KPT/JPS (F3-K061/062) 5/13

Chemical Engineers deal with the processing of materials on a commercial scale ranging from traditional commodities and utilities through to modern, high added-value products.

Course Overview

This programme provides students with core scientific and engineering knowledge coupled with a wide range of transferrable skills (IT, communications, management, analysis, problem solving and team work) that prepare for a career in the petroleum refining, petrochemicals, commodity and specialty chemicals, pharmaceuticals, fertilisers, food processing, fuels and energy production, water treatment or minerals processing sectors.

Typical Areas of Study

Year 1

You start by studying mechanisms and principles of operations involving flow of fluids, heating and cooling, chemical composition change and the inter-relationship between heat and power. Fundamentals of material and energy balances, separation processes and environmental engineering are introduced and illustrated in small scale laboratory work.

First year modules comprise: Introductory Chemistry, Applied Chemistry and Physics, Process Engineering Fundamentals, Fluid Mechanics, Environmental Management, Engineering Thermodynamics, Heat and Mass Transfer, Separation Processes Fundamentals, Modern Process Chemistry, Introductory Geology and Engineering Mathematics.

Year 2

You learn about common process operations, equipment items and methods for their design. There is coverage of materials, biotechnology, interfaces, chemical thermodynamics environmental protection, and engineering management. Laboratory work is of intermediate scope.

Second year modules comprise: Computer Systems, Basis of Biotechnology, Separation Processes, Engineering Materials, Interfacial Chemistry, Plant Design, Chemical and Phase Equilibria, Particle Mechanics, Probabilistic and Numerical Techniques for Engineers, Engineering Management and Accounting, Environmental Protection and Differential Equations and Calculus.

Year 3

You focus in more detail on safety, separation techniques, reactors, control, project management and chemical product design. Laboratory work is wider in scope and there is an extensive group project. You can also choose two specialised topics matched to your own interests.

Third year modules include: Chemical Engineering Laboratory, Multi-component Separations, Reactor and Chemical Product Design, Project Management, Process Dynamics and Control and either a Design Project (BEng only) or a Research and Development Project (MEng only).

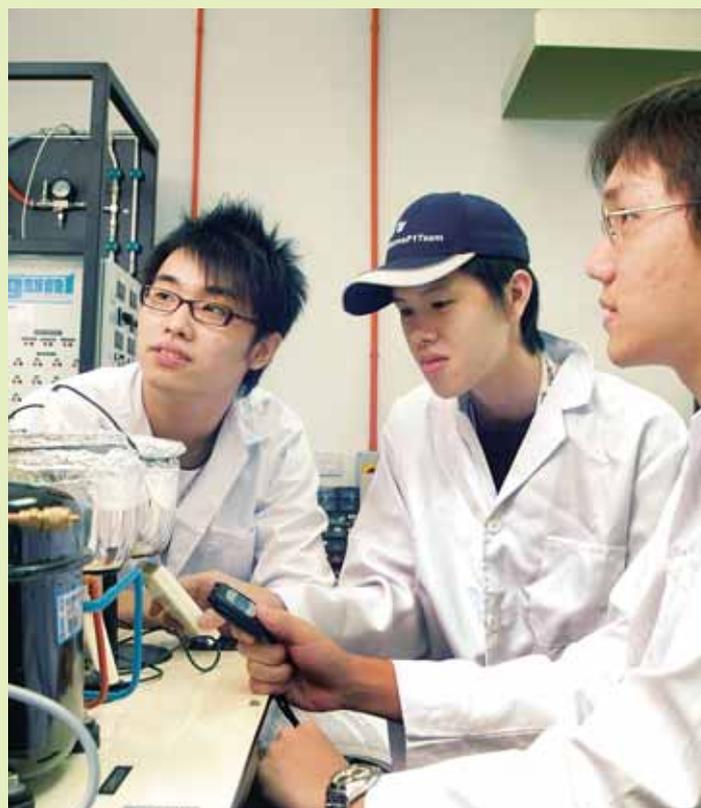
Year 4 (MEng only)

You concentrate on more advanced aspects of fluid, heat and multi-phase flow processes, reactors and whole process synthesis. There is a substantial and wide ranging group design project linked with industry and room to further develop your own specialised interests.

Fourth year modules include: Computational Fluid Dynamics, Process Synthesis and Design, Multiphase Systems, Advanced modules in Rheology and Materials and in Reaction Engineering plus a Design Project.

Graduates

By successfully completing this course you will be equipped for a career in chemical engineering, working as a professional in areas such as process and product design or plant management, or for work in other disciplines benefitting from the technical and problem-solving skills you have acquired.



H8HF BEng (Honours) / H8H2 MEng (Honours) Chemical Engineering With Environmental Engineering

KPT/JPS (F3-K063/064) 5/13

Students can expect to acquire the essential core knowledge and skills of chemical engineering enhanced with added emphasis on the minimisation of environmental impacts.

Course overview

The programme provides students with core scientific and engineering knowledge coupled with a wide range of transferrable skills which will together enable them to create environmentally responsible solutions to the engineering challenges of tomorrow.

Typical areas of study

Year 1

You start by studying mechanisms and principles of operations involving flow of fluids, heating and cooling, chemical composition change and the inter-relationship between heat and power. Fundamentals of material and energy balances, separation processes and environmental engineering are introduced and illustrated in small scale laboratory work.

First year modules comprise: Introductory Chemistry, Applied Chemistry and Physics, Process Engineering Fundamentals, Fluid Mechanics, Environmental Management, Engineering Thermodynamics, Heat and Mass Transfer, Separation Processes Fundamentals, Modern Process Chemistry, Introductory Geology and Engineering Mathematics.

Year 2

You learn about common process operations, equipment items and methods for their design. There is coverage of materials, biotechnology, environmental assessment, chemical thermodynamics and engineering management. Laboratory work is of intermediate scope.

Second-year modules include: Computer Systems, Basis of Biotechnology, Separation Processes, Engineering Materials, Environmental Assessment, Environmental Management, Plant Design, Chemical and Phase Equilibria, Particle Mechanics, Probabilistic and Numerical Techniques for Engineers, Engineering Management and Accounting and Differential Equations and Calculus.

Year 3

You focus in more detail on safety, separation techniques, reactors, control, project management and waste and waste water treatment. Laboratory work is wider in scope and there is an extensive group project. You can also choose a specialised topic matched to your own interests.

Third-year modules include: Chemical Engineering Laboratory, Multi-component Separations, Waste and Waste Water Treatment, Reactor Design, Project Management, Process Dynamics and Control and either a Design Project (BEng only) or a Research and Development Project (MEng only).

Year 4 (MEng only)

Students concentrate on more advanced aspects of fluid and heat flow processes, reactors, whole process synthesis and air pollution. There is a substantial and wide ranging group design project linked with industry and some room for a further specialised topic of interest.

Fourth year modules include: Computational Fluid Dynamics, Process Synthesis and Design, Air Pollution Control Technology, Advanced modules in Rheology and Materials, Reaction Engineering or Multiphase Systems plus a Design Project.

Graduates

By successfully completing this course you will be equipped for a career either in chemical or environmental engineering, perhaps working as a professional in environment related aspects such as waste treatment, pollution control or materials recycling, or in other disciplines benefitting from the technical and problem solving skills you have acquired.





DEPARTMENT OF CIVIL ENGINEERING



H201 BEng (Honours) / H200 MEng (Honours) Civil Engineering

KPT/JPS (H201) 3/15

Everyday we rely on some aspect of Civil Engineering to enable us to live our lives. Whether it is building the French Millau bridge, the London Eye, the Petronas Towers or life-saving water treatment plants in developing countries, civil engineering is the core discipline that enables projects to happen. It touches just about every kind of structure you can think about: bridges, roads, tunnels, skyscrapers, water supply facilities and even the coast and flood defences that protect homes. Civil engineering is fundamental to the world around us and underpins a modern society.

Over the years, Civil Engineering at Nottingham UK, has been consistently rated in the top Civil Engineering Schools in the country. A choice of MEng and BEng programmes is offered. The MEng has one of the largest cohorts in the UK and provides a fast track route to Chartered Engineer status. The highly respected BEng option offers a gateway to all civil engineering and other professions. At the Malaysia Campus the same degrees will be offered following the same curriculum.

The course includes a broad range of activities, including field courses and individual project, group-based design work, laboratory work and CAD work. Projects occur in all years of the course. The main areas and principles of civil engineering are introduced in the first and second years. In later years more advanced subjects are included together with optional modules. Additionally, the course seeks to develop your understanding and critical judgement and improves your abilities in communication and other transferable skills.

The first two years of the degree programmes are common. At the end of the second year students continue for either a BEng, which is a three-year degree; or MEng degree, which is a four-year degree. During their studies at the Malaysia campus, students may take part in the "mobility programme" spending up to 2 semesters in the UK at Malaysia Campus fees. Alternatively, students have the

opportunity to transfer to the UK campus after their first, second or third year, and complete their degree paying UK fees. Students who have obtained a Diploma in Civil Engineering may qualify for entry into the second year of the programme. Flexibility is a key feature of the students experience at the Malaysia campus.

As a civil engineer you must be socially aware and interested in working with people to solve problems and meet challenges. By the end of the course, students will be equipped to embark on a career in civil engineering, or other disciplines that require numerate problem-solving graduates. MEng graduates will have the breadth and depth of knowledge to reach the top in their chosen career.

You may find employment and work in any of the following specialties:

Structural Design: You will face the challenge of analysing and designing structures to ensure that they safely perform their purpose; they must support their own weight and resist dynamic environmental loads such as hurricanes, earthquakes, blizzards, and floods.

Construction: The construction phase of a project represents the first tangible result of a design. Using your technical and management skills, you will help turn designs into reality - on time and within budget.

Geotechnical: Almost all of the facilities that make up our infrastructure deal with earth materials, Facilities in the earth are tunnels, deep foundations, and pipelines. Highway pavements and many buildings are supported on the earth, while earth dams, levees, embankments, and slopes are constructed with the earth.

Water Resources: You will work to prevent floods, to supply water for cities, industry and irrigation, to treat wastewater, to protect beaches, or to manage and redirect rivers. You might be involved in the design, construction, or maintenance of hydroelectric power facilities, canals, dams, pipelines, pumping stations, locks or seaport facilities.

Transportation: The quality of a community is directly related to the quality of its transportation system. Your function will be to move people, goods, and materials safely and efficiently. Your challenge will be to find ways to meet the increasing travel needs on land, air and sea.

Urban Planning: You will be concerned with the full development of a community. Analysing a variety of information will help you coordinate projects, such as projecting street patterns, identifying park and recreation areas, and determining areas for industrial and residential growth.

Course Structure

Year 1

Introduction to the core disciplines and the context of civil engineering; engineering design introduced through project work; residential surveying field course; opportunity to follow optional modules.

Core Modules:

Structural mechanics - Industry and Profession – Communications – Surveying – Management – Hydraulics - Geotechnics – Materials – Mathematics

Conceptual Design Project

This project concludes the engineering communication module and involves groups of students on the conceptual design of a bridge, station, tower or other structure.

Surveying field course

Students work on group exercises in surveying, mapping and setting out during a week-long residential course.

Year 2

Core subjects developed in greater depth alongside further optional modules; major design-based project to help you see the application of your studies.

Core Modules:

Structures – Surveying - Construction Management – Hydraulics – Geotechnics – Materials - Civil Engineering Design

Civil Engineering Design Project

Students are introduced to the design process by a year-long project that follows the design of a civil engineering project from initial concepts through to detailed design. Students work individually and in groups to produce a design portfolio that includes outline, project appraisal, loading calculations and engineering drawings. The project provides students with plenty of opportunities to hone their written and oral presentation skills.

Year 3

Core subjects developed in greater depth alongside further optional modules; major design-based project to help you see the application of your studies

Core Modules:

Structures - Construction Management – Hydraulics – Geotechnics – Materials - Industrial training

Optional Modules:

Pavement engineering - Steel structures - Railway engineering - Environmental geotechnology



BEng: Investigative Project

Students choose a project in their preferred discipline and plan a detailed investigation. Typically projects involve laboratory experimentation, field investigations or computer modeling, and require data collection and analyses.

MEng: Engineering In Context

Students choose a particular aspect of civil engineering and investigate how it is carried out in practice in the current construction industry.

Year 4 - (MEng only)

Choice of a wide range of elective modules; major group design project; individual investigative project.

Optional Modules:

Coastal engineering - Natural hazards and environmental fluid mechanics - Construction planning and risk - Advanced pavement materials - Concrete structures - Finite element analysis - Soil mechanics - Computational fluid dynamics - Concrete technology - Construction management processes - Traffic engineering

Group Design Project

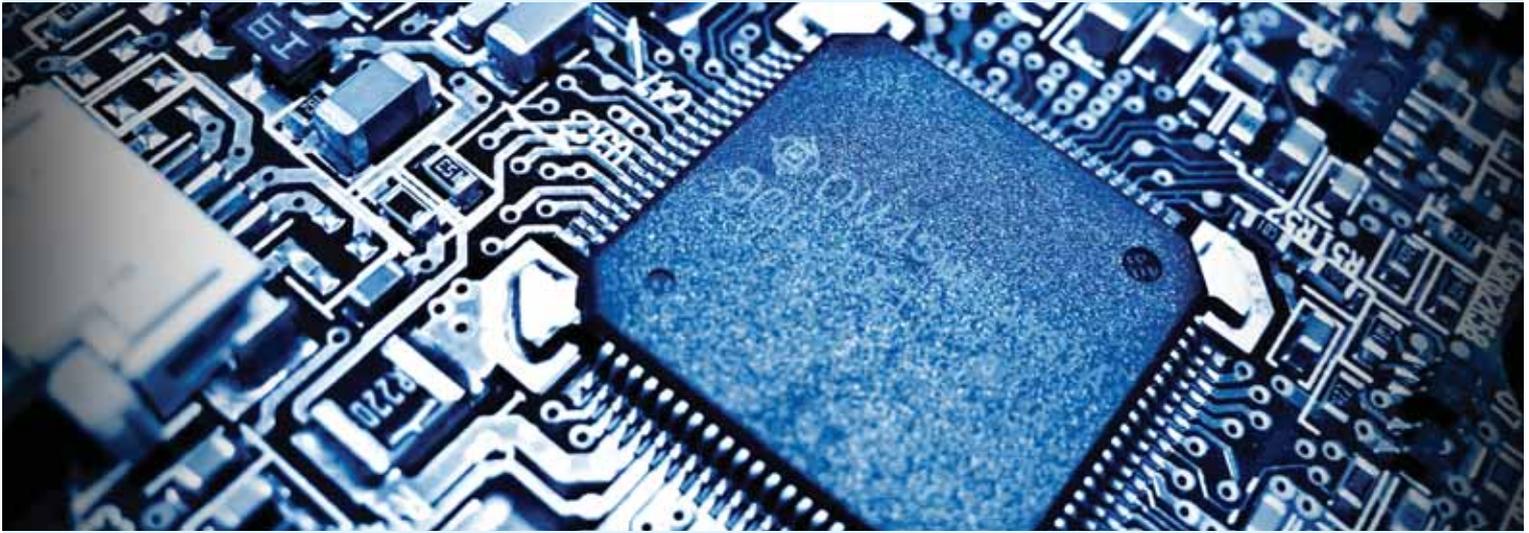
Students work in groups on the design and planning of a civil engineering project that aims to integrate all the disciplines covered on the course. Typical projects include: water works, highway schemes, retail parks, residential complex development. Staff and visiting professionals provide guidance.

Investigative Project

Students choose a project in their preferred discipline and plan a detailed investigation. Typically projects involve laboratory experimentation, field investigations or computer modeling, and require data collection and analyses.



DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING



Electrical and Electronic Engineering continues to transform the way we live - from the latest consumer products through to sophisticated scientific and industrial technologies. The subject area encompasses an interesting range of topics and develops a variety of skills that are in great demand by employers.

The Department of Electrical and Electronic Engineering at The University of Nottingham has a long history of teaching and research and was one of the first departments to be established at the Malaysia Campus.

Since 2000 a range of Electrical and Electronic degrees has been offered at the Malaysia Campus. The Department is now fully developed, and the academic staff, like their Nottingham colleagues, have an extensive research portfolio.

The main forms of teaching you'll encounter are lectures, practical laboratory sessions and project work. These are supplemented by problem solving workshops and tutorials. A tutorial is a regular meeting of typically 4 students with a member of the teaching staff to support your studies. For a typical week in your first year you can expect to attend about

12-14 hours of lectures, 5 hours of problem-based workshops, 6 hours of practical hands-on laboratory sessions and 1 hour in a small group tutorial. For the rest of the time you are working independently, doing the necessary reading in preparation for writing reports, and laboratory experiments.

All students are allocated a personal tutor. Tutorials take place on a weekly basis in the first year. Tutors regularly review your academic progress and are also available to help with any personal matters. Tutorials help to develop your communication skills, time management and your ability to work in groups.

Our degrees open up a whole world of opportunity and prospects. Many students pursue fantastic careers in engineering, while others enter the management and commerce sector, or software and IT and some also continue their studies with further education. Engineering and other industries rate our students so highly that the majority of our graduates find career employment or pursue further training on Masters or PhD programmes within six months of graduating.

H622 BEng (Honours) / H601 MEng (Honours) Electrical Engineering

KPT/JPS (F3-K054/055) 2/13

Electrical Engineering concerns the generation, supply, distribution, application and control of electrical energy. It is also the powerhouse of the manufacturing industry – think of all the electrically powered equipment on a modern production line - without it, industry and the nation would grind to a halt! With the drive to a sustainable future with lower carbon emissions, the intelligent use of electricity is the key to the more efficient use of energy. Wind, wave and other renewable sources, hybrid and all electric cars, more electric ships and aircraft are all developing industries that are crying out for well qualified Electrical Engineers.

This degree is designed for students wishing to develop knowledge and skills for a career in these fields. Students study electrical subjects covering power generation and distribution, electrical machines, power electronics, power quality, electromagnetic compatibility (EMC) and industrial drive processes, as well as relevant subjects covering control, programming and signal processing.

Course Structure

Year 1

Students will gain an understanding of the principles and practices on which electrical engineering is founded. This is achieved through the study of analogue and digital electronics, the application of electrical energy and practical work including programming and projects. Furthermore, students' understanding is further developed in underpinning subjects, such as, mathematics.

Year 2

Students will continue to develop their understanding of electrical engineering. This will prepare them to study, in the final years of their course, emerging and advanced technologies usually taught by internationally recognised researchers. Group projects, presentations and seminars enable them to gain the skills and understanding essential for the workplace.

Years 3 and Year 4

In the final years, students will be able to choose from a range of specialised topics. They will also undertake individual research projects, which form a major component of the final year. During the third year of the MEng, students will participate in group projects, evaluating technical aspects as well as socio-economic impact.

H603 BEng (Honours) / H600 MEng (Honours) Electrical & Electronic Engineering

KPT/JPS (H603) 3/15

Electrical and Electronic Engineering offers students the opportunity to select from a variety of topics in Electrical and Electronic Engineering. These topics include electronic design, communications, software engineering, computer modelling, microelectronics, power generation and distribution, electrical machines, signal processing, renewable energy systems, instrumentation etc. Multidisciplinary is definitely the word!

This degree course offers students the chance to study a broad range of topics whilst still allowing specialisation in the later years of the course. In the final year each student completes a substantial individual project in an area of their choice.

Course Structure

Year 1

Students will gain an understanding of the principles and practices on which electrical engineering is founded. This is achieved through the study of analogue and digital electronics, the application of electrical energy and practical work including programming and projects. Furthermore, students' understanding is further developed in underpinning subjects, such as, mathematics.

Year 2

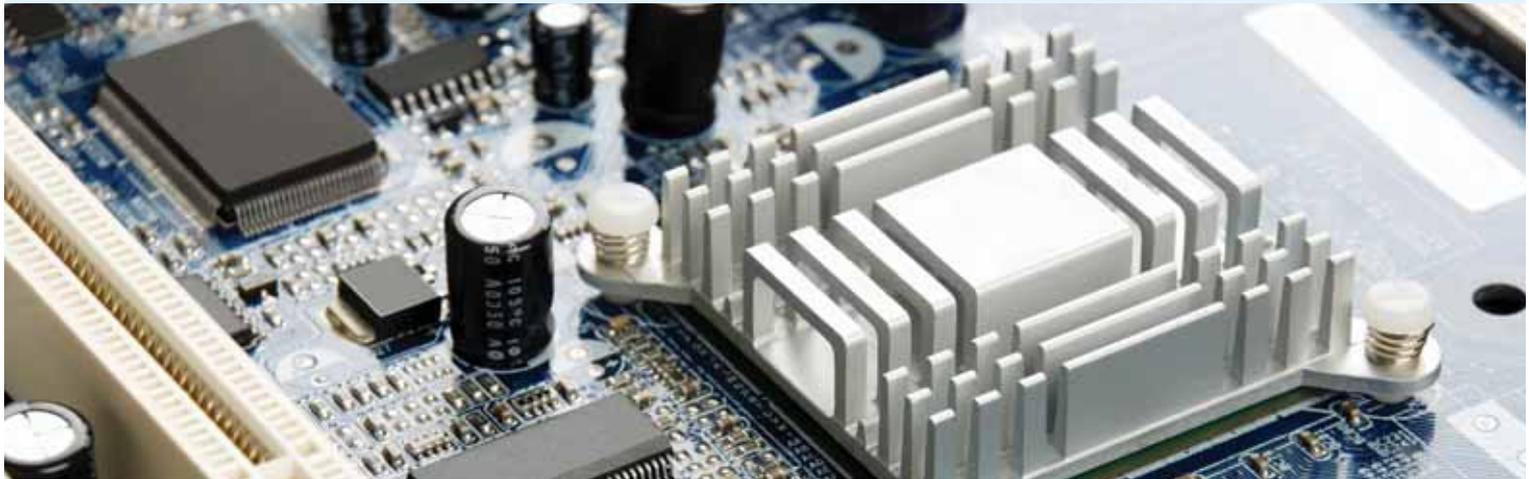
Students will continue to develop their understanding of electrical and electronic engineering. This will prepare them to study, in the final years of their course, emerging and advanced technologies usually taught by internationally recognised researchers. Group projects, presentations and seminars enable them to gain the skills and understanding essential for the workplace.

Year 3 and Year 4

In the final years, students will be able to choose from a range of specialised topics. They will also undertake individual research projects, which form a major component of the final year. During the third year of the MEng, students will participate in group projects, evaluating technical aspects as well as socio-economic impact.



DEPARTMENT OF ELECTRICAL & ELECTRONIC ENGINEERING



H612 BEng (Honours)/ H610 MEng (Honours) Electronic Engineering

KPT/JPS (H612) 3/15

The field of electronic engineering continues to dominate the world of automation technology, IT and global communications. There is a huge range of job opportunities available in research, circuit and systems development, applications, commissioning and support, project management, consultancy, marketing, sales plus many more, in a wide range of application areas such as entertainment (audiovisual systems), communications systems and instrumentation (medical, industrial). This degree allows the widest possible choice of modules in the fields of electronic design, instrumentation, communications, optical engineering, new electronic devices, microelectronics, VLSI and engineering software.

Course Structure

Year 1

Students will gain an understanding of the principles and practices on which electrical engineering is founded. This is achieved through the study of analogue and digital electronics, the application of electrical energy and practical work including programming and projects. Furthermore, students' understanding is further developed in underpinning subjects, such as, mathematics.

Year 2

Students will continue to develop their understanding of electronic engineering. This will prepare them to study, in the final years of their course, emerging and advanced technologies usually taught by internationally recognised researchers. Group projects, presentations and seminars enable them to gain the skills and understanding essential for the workplace.

Year 3 and Year 4

In the final years, students will be able to choose from a range of specialised topics. They will also undertake individual research projects, which form a major component of the final year. During the third year of the MEng, students will participate in group projects, evaluating technical aspects as well as socio-economic impact.

H613 BEng (Honours) / H611 MEng (Honours) Electronic & Computer Engineering

KPT/JPS (F3-K056/057) 2/13

This degree is designed for students having a particular interest in computers, computing systems and software. Directed specialism for both modules and project include microelectronics and VLSI (integrated circuit design), advanced software design, computer networks and other modules. The electronic and computer engineering programme has strong research activities in computer vision.

Course Structure

Year 1

Students will gain an understanding of the principles and practices on which electronic and computer engineering is founded. This is achieved through the study of computer engineering, analogue and digital electronics, the application of electrical energy and practical work including programming and projects. Furthermore, students' understanding is further developed in underpinning subjects, such as, mathematics.

Year 2

Students will continue to develop their understanding of electronic and computer engineering. This will prepare them to study, in the final years of their course, emerging and advanced technologies usually taught by internationally recognised researchers. Group projects, presentations and seminars enable them to gain the skills and understanding essential for the workplace.

Year 3 and Year 4

In the final years, students will be able to choose from a range of specialised topics. They will also undertake individual research projects, which form a major component of the final year. During the third year of the MEng, students will participate in group projects, evaluating technical aspects as well as socio-economic impact.



H690 BEng (Honours) / H640 MEng (Honours) Electronic and Communications Engineering

KPT/JPS (F3-K010) 3/15

This degree is designed for those students who are particularly interested in communications and covers communication devices, electronics, protocols and systems. Module choice and project work is directed towards specialism in these areas. An electronics and communications engineer will be equally familiar with traditional radio or analogue communications as he is with modern digital and mobile communications.

Course Structure

Year 1

Students will gain an understanding of the principles and practices on which electronic and communications engineering is founded. This is achieved through the study of communications engineering, analogue and digital electronics, the application of electrical energy and practical work including programming and projects. Furthermore, students' understanding is further developed in underpinning subjects, such as, mathematics.

Year 2

Students will continue to develop their understanding of electronic and communications engineering. This will prepare them to study, in the final years of their course, emerging and advanced technologies usually taught by internationally recognised researchers. Group projects, presentations and seminars enable them to gain the skills and understanding essential for the workplace.

Year 3 and Year 4

In the final years, students will be able to choose from a range of specialised topics. They will also undertake individual research projects, which form a major component of the final year. During the third year of the MEng, students will participate in group projects, evaluating technical aspects as well as socio-economic impact.



HNM5 BEng (Honours) / MEng (Honours) Mechatronic Engineering

KPT/JPS (F3-K058) 2/13

In 1969 the term "mechatronics" was first coined by Mr. Tetsuro Mori (a Japanese engineer from Yaskawa Electric Company) to reflect the merging of electrical and mechanical engineering disciplines. Today, the term is a professional discipline that encompasses electrical, electronic and mechanical engineering with intelligent embedded control. This engineering discipline draws on large array of technologies from various disciplines into one very specialised field.

The BEng/MEng undergraduate programme in mechatronic engineering was initiated and established by the University of Nottingham in 2005, bringing exciting opportunities of research, industrial collaboration and learning.

Course Structure

Year 1

The first year provides foundation aspects of electrical, electronic, programming and mechanical engineering principles. It also introduces students to fundamental practical laboratory experiments in electrical and electronic engineering, as well as, mechanical designs and manufacturing. Furthermore, students understanding are further developed in underpinning subjects such as mathematics.

Year 2

The second year continues to develop the understanding of relevant electrical, electronic and mechanical engineering topics that are related to Mechatronics. Practical knowledge and skills are also extended to examine and programme basic mechatronic integrated systems. Furthermore, emphasis is made on the completion of group based projects. The core mathematics for the programme is also continued in this year.

Year 3 and Year 4

In the final years, more specialised modules are introduced, such as, control engineering, artificial intelligence, robotics and other topics that are specific to mechatronic engineering. In year 3, practical experiments are introduced in instrumentation, measurement and control of hydraulic, pneumatic and electric systems. Furthermore, students are introduced to basic practical concepts in robotics. In year 4 (MEng only), students are expected to conduct Group Development Projects to develop mechatronic products.

DEPARTMENT OF MECHANICAL, MATERIALS AND MANUFACTURING ENGINEERING



The Department of Mechanical, Materials and Manufacturing Engineering is one of the leading departments of its kind in the world. Its close links with industry ensure that its teaching and research have both relevance and meaning, and this is one of

the reasons why it is highly ranked for its teaching and research in the UK. In 2005, the Department started offering the same Mechanical Engineering courses at the Malaysia Campus.

H302 BEng (Honours) / H300 MEng (Honours) Mechanical Engineering

KPT/JPS (F3-K059) 5/13

Mechanical Engineering is a uniquely broad based profession. Mechanical Engineers apply their scientific knowledge to solve problems and design machines that help us to enjoy a better life. Not only do Mechanical Engineers find themselves working in areas traditionally associated with the discipline, such as power generation, automotive, aerospace and manufacturing industries, but also they find themselves working in interdisciplinary teams solving problems in areas such as nano-technology, electrical and electronic systems, environmental protection, bio-engineering, renewable energy and food industry. Our Mechanical Engineering degree is accredited by the Institution of Mechanical Engineers (IMechE) and Institution for Engineering Designers (IED), and means that the qualification can be used towards your registration as a Chartered Engineer with the Engineering Council, UK. The 3-year BEng and 4-year MEng courses offered in the UK are available at the Malaysia Campus. Design is the key integrating element in all years of the course. Real-world engineering, the importance of communication and team-working skills, the need to display entrepreneurship and initiative, and the relevance of appropriate management and business principles are emphasised. Engineering science and engineering design are core disciplines whilst other important areas are mathematics, manufacturing technology, IT, electronics and control. For students interested in the automotive industry, MEng degree offers a specialist stream in Automotive Technology in Years 3 and 4.

Course Structure

Typical areas of study

Years 1 and 2

Engineering design (including materials and manufacture)
Engineering science (thermodynamics, fluid mechanics,
mechanics of solids, dynamics, electromechanical
systems) - Mathematics - IT - Management.

Year 3 - BEng/MEng

Computer modelling techniques - Management - Optional modules which will allow you to follow specific themes and to develop areas of expertise and interest. MEng can select the Automotive specialist stream.

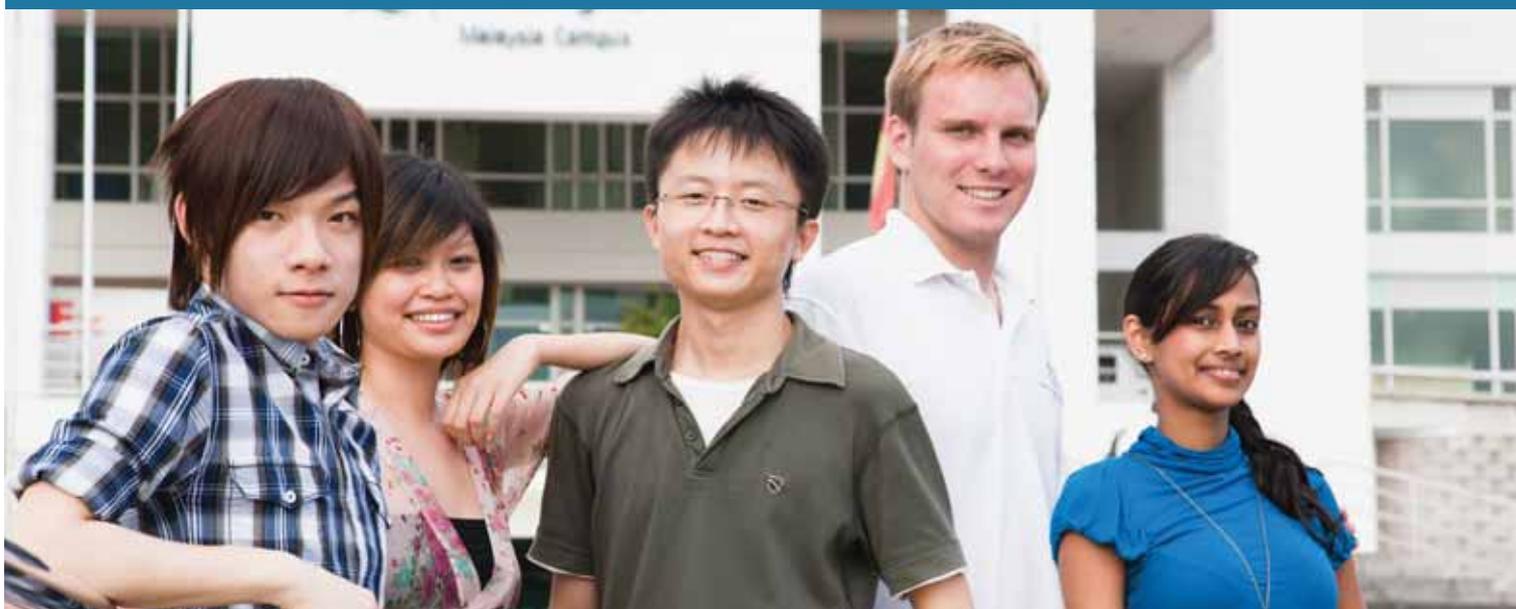
Year 4 - MEng

Advanced technology review - Integrated systems analysis - Optional modules which will allow you to follow specific themes and to develop areas of expertise and interest.

Project Work

In Year 3, MEng students do a major group project. Up to four students will work as a multidisciplinary team to design, manufacture and develop a product. Starting with the design brief, normally linked to an industry need, the group will devise and evaluate alternative design concepts, undertake the detailed engineering analysis and mechanical design, manufacture a prototype, evaluate its performance, undertake development work to improve it, and assess the financial viability and marketability of the product. All students will do an individual project in their final year. This is of an experimental, computational or analytical nature and provides a link between academic and professional work. You will be able to choose your individual project topic - most of which are based on real industrial problems.





Entry Requirements for all undergraduate engineering courses

Nottingham Foundation in Engineering: Average pass marks of 40% and above.

A-Levels: BBB in Mathematics, Physics (or Chemistry for Chemical Engineering), excluding General Studies.

STPM: B+B+B+ in Mathematics, Physics (or Chemistry for Chemical Engineering), excluding General Studies.

SAM/AUSMAT/HSC: ATAR 88 including Mathematics, Physics and Chemistry.

Canadian Pre-U: 85% average based on 6 subjects, including Mathematics and Science subjects.

IB: 32 points with 16 in HL, including 5 points in Mathematics (SL) and 5 points in Physics (or Chemistry for Chemical Engineering).

UEC: 5 A's 2 B's with Grade A in Mathematics, Physics (or Chemistry for Chemical Engineering), excluding Chinese Language.

Other equivalent qualifications will be considered on a case-by-case basis.

HND and other equivalent Diploma/Advanced Diploma with a minimum average of Grade B and a Distinction in Mathematics will be considered for direct entry into Year 2.

English Language Requirements

SPM: Grade B+

GCE O-Level (1119): Grade C

GCE/IGCSE: Grade C

IB: 5 points

UEC: Grade A2

IELTS: 6.0 (no less than 5.0 in any element)

TOEFL (PBT): 550 with TWE 4.0

TOEFL (iBT): 79 (no less than 17 in any element)

STUDENTS' ACHIEVEMENTS

The University of Nottingham first caught my attention while I was in high school. Boasting as one of the very first branch campus operating from UK, I had high expectations that this will be an education experience unlike any other. Although the university was still young when I first enrolled, the education which was offered was on par with other matured institutions.

With a mix of experienced lecturers from around the world, we were exposed to multiple schools of thought and learning styles – which mentally prepared us for the challenging world.

The university has indeed prepared me well to face the industrial standards and harsh realities by organising group work, presentations and weekly assignments. I also had the chance to freely interact with not only my coursemates from multi-disciplinary background, but also lecturers who practised the open door concept. The Nottingham edge enabled each of us to grow at our own pace and enhance our ideas from a platform above others. One example was my research project being showcased at the Symposium of Chemical Engineers 2007. Upon graduation, I was lucky enough to enter the oil and gas industry.

Now 10 years after the grand opening of the university, I have high hopes that Nottingham university will grow even better, I look forward to more achievements from graduates of Nottingham.



Celarence Tai

27 years old, Malaysian

MEng (Hons) Chemical Engineering
Quotations Analyst, Baker Hughes, KL

What attracted me to study at the University of Nottingham Malaysia Campus were its cutting-edge research strength, top-notch education and world-class renowned degree courses that offer a ticket to a vista of opportunities and career paths.

A combination of practical and theoretical learning, a diverse range of lecturers' expertise and the opportunity to participate in current research and industrial experience through internships and final year individual projects is what provided me with the 'Nottingham Edge'. I was impressed with Nottingham's focus on practical application, emphasis on commercial software learning such as Pro/Engineer® and FLUENT®, and enhancement of soft skills through oral and poster presentations and group projects. The lecturers made it a point to relate the subject to current research trends and industrial practices and always challenged us to think outside the box. External invited guest speakers and frequent faculty research talks complemented the theory taught in class.

A distinct privilege of being a BEng Mechanical student at the Malaysia campus was that we were enrolled as Affiliate Members of The Institute of Mechanical Engineers (IMechE, UK) and through the local Young Member's Branch in Malaysia, we were able to participate in industrial plant visits, inter-campus competitions such as 'Speak Up for Engineering' and interact with other students from within Malaysia and around the world.

These are the reasons why I choose to remain and continue with my PhD studies at Nottingham Malaysia. I was able to extend my third year individual project to a research study through a full Nottingham scholarship. I also was the recipient of the IMechE Best Project University Award and IMechE Environmental Issues Industrial Award. Similarly, I've had the opportunity to participate in a number of international academic conferences such as the Universitas 21 (of which Nottingham is a member) Graduate Conference: Sustainable Cities for the Future at the University of Melbourne and University of Queensland, Australia and have received a Building Experience and Travel Scholarship (BESTS) fund to do a research placement at the University of Salento, Italy; both sponsored by the Graduate School, UK Campus. I was also elected as an Associate Member of the IMechE and look forward to becoming a Chartered Engineer in the future.



Mr. Salim Mohamed Salim, AMIMEchE

28 years old, Kenyan

First Class Honors

Bachelor of Mechanical Engineering

PhD Student

Environmental Pollution, Urban Climate & Computational Fluid Dynamics
The University of Nottingham Malaysia Campus



The University of
Nottingham

UNITED KINGDOM · CHINA · MALAYSIA



The University of Nottingham Malaysia Campus

KPT/JPT/DFT/US/B19

Jalan Broga, 43500 Semenyih,
Selangor Darul Ehsan, Malaysia

T: +6(03) 8924 8000 F: +6(03) 8924 8002

E: enquiries@nottingham.edu.my (Malaysians)

international.enquiries@nottingham.edu.my (Non-Malaysians)

Applications: admissions@nottingham.edu.my (Malaysians)

int-admissions@nottingham.edu.my (Non-Malaysians)