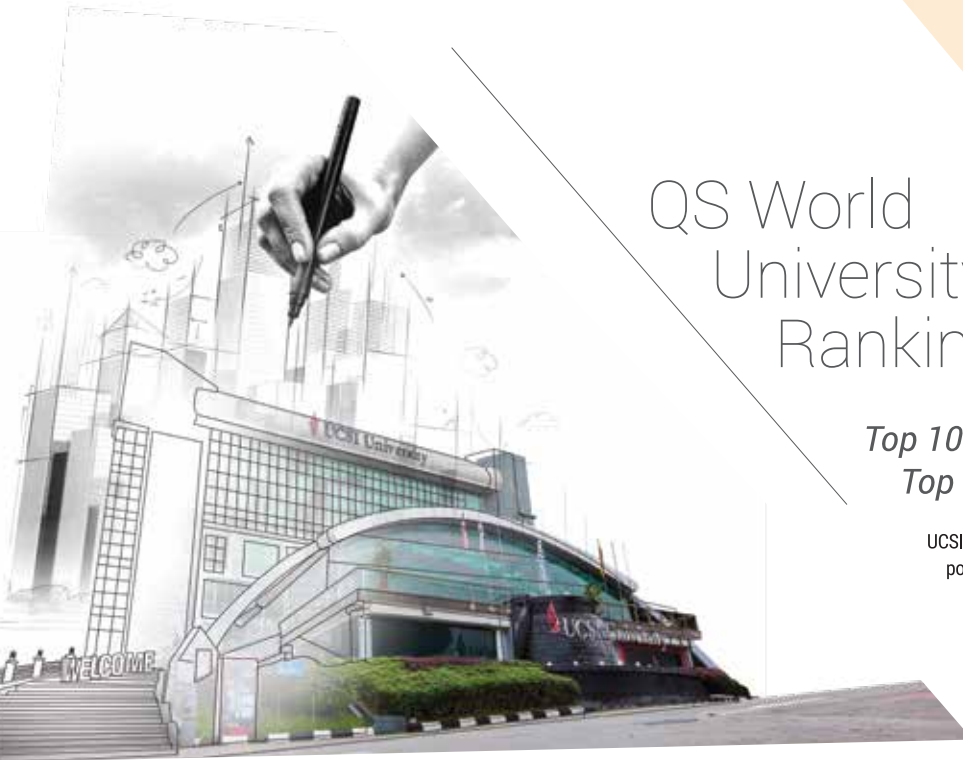


# FACULTY OF ENGINEERING, TECHNOLOGY AND BUILT ENVIRONMENT



[ucsiuniversity.edu.my](http://ucsiuniversity.edu.my)





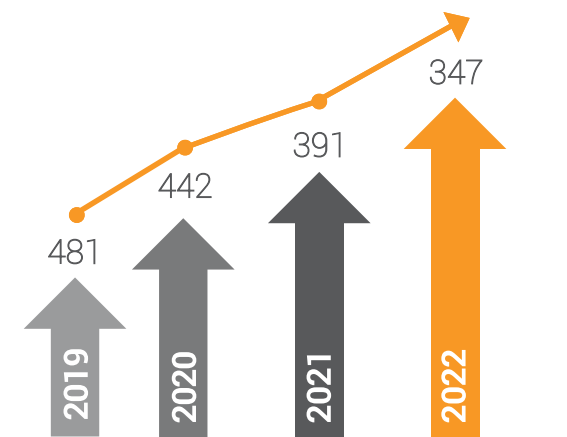
# QS World University Rankings 2022

**Top 10 in Malaysia –  
Top 1.1% in the world.**

UCSI University continues to hold a formidable position in the QS World University Rankings 2022 after it broke yet another barrier to be placed among the top 350 varsities worldwide. Climbing 44 spots, UCSI has been placed among the top 1.1% of the world's universities.



A steady rise to the top.  
**with a Breakthrough to Top 350**



## UCSI's Milestones

### QS World University Rankings 2022

- A top seven university in Malaysia, along with the nation's five research universities.
- Ranked in the top 1.1% of all universities in the world.

### QS Graduate Employability Rankings 2020

- A top three university in Malaysia for producing employable graduates.

### QS World University Rankings by Subject 2021

- Ranked in the top 50 for performing arts.
- Ranked in the top 100 for hospitality and leisure management.
- Ranked in the top 150 for petroleum engineering.
- Ranked in the top 300 for business and management.



UCSI University is the first and only private university in Malaysia to be recognised as a Regional Centre of Expertise (RCE) by the United Nations University – the academic and research arm of the UN.



**100%**  
**EMPLOYABILITY SCORE**

for 84 of the 87 UCSI's programmes listed in the Higher Education Ministry's Graduate Employability 2020 survey

Averagely, all 87 programmes scored **99.8%** in the survey.

**MORE THAN 4500**  
global companies provide our students with internships.



Of our co-op partners would like to rehire UCSI Interns.

Students from over **110 NATIONS**  
30% of UCSI's student population is international.



**>49%** of UCSI's academic staff are PhD holders and a further 20% are pursuing their doctorate.



**The 1<sup>st</sup>** university in Malaysia's private higher education sector to offer programmes in Aquatic Science, Biotechnology, Food Science, Music and Nutrition.





*The artist's impression of UCSI's education city.*

## Tomorrow's Education Today

***It's not just a campus  
expansion. It's an education  
city in the making.***

*Long-renowned for its excellent track record in teaching and learning, UCSI University is quickly making a name for itself in research and innovation. As the best private university for two years in a row according to the QS World University Rankings 2019 and 2020, UCSI is a higher learning institution that opens doors for students and staff to achieve their full potential.*

*Since 2014, UCSI's top students have been annually selected to advance high impact research at Harvard University, Imperial College London, the University of Chicago and Tsinghua University, among others.*

*Over the years, tens of thousands of students from 110 different countries have studied at UCSI University, making the campus a vibrant melting pot of culture and diversity. At present, the university runs what is Malaysia's largest*

*university-industry network through its Employment and Co-Operative Placement (Co-Op) programme, which provides employment support services for undergraduates and graduates, including alumni.*

*Today, it has over 4,200 global companies to provide each student with at least two months of internships each year. This network includes many of the world's best firms like Accenture, CIMB, Citibank, Deloitte, DHL, Ernst & Young, Hewlett-Packard, HSBC, KPMG, Maybank, Nestle, Samsung, Schlumberger, Standard Chartered, Ogilvy, P&G, Petronas and PWC, among others.*

*With these and more, UCSI stands out as a university that offers an education few can, provides experiences others can't and delivers life-defining outcomes for students everywhere.*

# Faculty of Engineering, Technology and Built Environment

*A confluence of practical studies and theoretical learning, the Faculty of Engineering, Technology and Built Environment at UCSI University has developed a range of innovative programmes that are recognised by both local and international bodies like the Malaysian Qualifications Agency (MQA), the Malaysian Engineering Accreditation Council (EAC), and the Board of Engineers Malaysia (BEM). With Malaysia as a signatory of the Washington Accord, our programmes are also recommended for recognition by member countries including Australia, Canada, Ireland, New Zealand, UK and US.*

*Our academics build on two vital qualities: an eagerness to share their knowledge and a desire to engage students in the Faculty's research projects. Students will have access to industry-standard facilities and engineering software and technology.*

*Our top students are sent abroad annually for research attachments at some of the best universities in the world such as Imperial College London in the UK, Tsinghua University in China and the University of Queensland in Australia.*

*Your studies here will be insightful. But more than that, it will be meaningful. Theory will lead to cutting-edge practice. Your enthusiasm will lead you to achievements. And your work will be challenging and impactful. Engineer your future with us today.*



## Why study Engineering at UCSI?

**A PLATFORM FOR TRANSDISCIPLINARY COLLABORATION WITH  
8 DISCIPLINES**

**>RM28MILLION INVESTED ON INDUSTRY-STANDARDS FACILITIES  
WITH IoT AND FACE RECOGNITION TECHNOLOGIES**

**RESEARCH ATTACHMENTS AT RENOWNED UNIVERSITIES LIKE  
IMPERIAL COLLEGE, TSINGHUA, AND QUEENSLAND**

**INTERNSHIPS OF UP TO TWICE**

**PROGRAMMES ARE RECOGNISED BY WASHINGTON  
ACCORD AND BEM**

# Renowned Academics

Learn from a team of acclaimed professors and academics who are at the forefront of their respective disciplines. Work with them, be mentored by them and benefit from their wealth of experience.

**ASSOCIATE PROFESSOR IR  
DR JIMMY MOK VEE HOONG**

*Deputy Vice-Chancellor, Academic, Student and Alumni Affairs*

*PhD in Microwave Engineering  
BEng (Hons) Electrical and Electronic Engineering*

**ASSISTANT PROFESSOR  
Ts DR ANG CHUN KIT**

*Dean*

*PhD in Mechanical Engineering  
BEng (Hons) Mechatronic Engineering*

**ASSISTANT PROFESSOR  
Ts DR LIM WEI HONG**

*Deputy Dean*

*PhD in Computation Intelligence  
BEng (Hons) Mechatronics Engineering*

**PROFESSOR DATO' DR AHMAD BIN IBRAHIM, FASc**

*Professor of Environmental Management*

*PhD Wastewater Engineering  
B Chem Eng  
Fellow Academy of Sciences Malaysia*

**PROFESSOR DATO' IR DR MOHD RIZON BIN  
MOHAMED JUHARI**

*Professor of Artificial Intelligence*

*Doctor of Engineering (Computer Science and  
Intelligent Systems)  
Master of Electrical and Electronics Engineering  
Bachelor of Electrical and Electronics Engineering*

**ASSOCIATE PROFESSOR  
IR DR RODNEY TAN HEAN GAY**

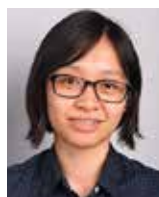
*Associate Professor*

*PhD Electrical Engineering  
MSc Microelectronic Engineering  
BSc E&E Engineering*

**PROFESSOR DR MOHD RAZMAN BIN SALIM**

*Professor*

*PhD (Environmental Engineering)  
Master of Civil Engineering (Sanitary Engineering)  
B.Sc. in Civil Engineering*

**ASSISTANT PROFESSOR  
IR Ts DR KIEW PECK LOO**

*Lecturer*

*PhD Chemical Engineering  
BEng (Hons) Chemical Engineering*

**PROFESSOR IR DR BARKAWI BIN SAHARI**

*Professor, Department of Mechanical Engineering*

*PhD Mechanical Engineering  
BSc (Hons) Mechanical Engineering*

# Foundation

*As we stand at the onset of the Fourth Industrial Revolution, engineers will play a starring role in the era of smart factories, the industrial internet of things, next-generation robotics and self-learning AI.*

*If you want to play a role in engineering the future, you'll need to acquire a fundamental understanding in science, technology, engineering and mathematics (STEM) which we provide at UCSI as well as a special focus on engineering design and advanced engineering technology.*

*At UCSI, you will learn from esteemed professors and academics who work on solutions that address global problems. You will also take part in industry visits, applying your knowledge at state-of-the-art laboratories and facilities. And as you lay the groundwork for further studies in Engineering, you will appreciate how this is more than a prep course. Join us and spring board your career.*

## Start Focused. Stay Ahead.

UCSI's specialised foundation pathway helps you acquire a much stronger grasp of your chosen field of study while covering the overall reach of a standard foundation programme. Apart from helping you immensely as you progress to degree studies, UCSI's foundation programme also provides you with an early taste of what the industry expects.

### Core Subjects

- General Chemistry I
- General Chemistry II
- General Physics I
- General Physics II
- Fundamentals of Mathematics
- Algebra and Trigonometry
- Calculus
- Introduction to Engineering
- Introduction to Probability and Statistics
- Introduction to Business
- Computing Essentials



### Special Focus On

- Role of Engineers in Society
- Elementary Engineering Design



### Bachelor Degrees

- Bachelor of Chemical Engineering with Honours
- Bachelor of Petroleum Engineering with Honours
- Bachelor of Mechanical Engineering with Honours
- Bachelor of Mechatronics Engineering with Honours
- Bachelor of Civil Engineering with Honours
- Bachelor of Electronics Engineering (Communication) with Honours
- Bachelor of Electrical and Electronics Engineering with Honours
- Bachelor of Computer Engineering (Artificial Intelligence) with Honours
- Bachelor of Environmental Engineering with Honours
- Other related degree programmes



# Diploma In Electrical and Electronic Engineering

(R2/523/4/0217) (12/2024) (A5631)

*Students of this programme will receive a strong engineering foundation in electrical technology, telecommunication, control and instrumentation systems, as well as digital and analogue electronics. Expect plenty of hands-on training in cutting-edge laboratories as you hone your technical skills and tackle complex projects.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: ge.mohe.gov.my/)*



**SHAHRIZAL JELANI**

Electrical and Electronics Engineering Department

*He received the Outstanding Researcher Award at the International Conference on Engineering and Computing 2020 (ICEEComp2020).*

## Subject Listing

### Year 1

- Engineering Physics I
- Engineering Mathematics I
- Computer Applications
- Electrical and Electronic Principles
- Engineering Physics II
- Circuit Analysis I
- Engineering Design
- Digital Electronics
- Engineering Mathematics II

### Year 2

- Engineering Principles
- Applied Computing
- Circuit Analysis II
- Electrical Technology I
- Electrical Technology II
- Telecommunication Principles
- Industrial Studies
- Analogue Electronics
- Engineering Mathematics III
- Industrial Training I
- Project A

### Year 3

- Control and Instrumentation Systems
- Microprocessor Based Systems
- Project B

## Career Opportunities

Design Engineer | Project Engineer | R&D Engineer | System Design Engineer | Analog Design Engineer |  
Test Engineer | PCB Design Engineer | Electrical Engineer | Digital Design Engineer

# Bachelor of Chemical Engineering with Honours

(R2/524/6/0024) (05/2023) (MQA/FA9302)

*This four-year programme combines the three basic physical sciences – chemistry, physics and biology – with mathematics, which makes it one of today's most versatile engineering fields. This allows room for specialisation in a very broad spectrum of fields, including bioprocess, petroleum refining, waste management and etc. At UCSI, students are exposed to a myriad of new technologies that are rapidly reshaping the society we live in.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: ge.mohe.gov.my/)*

## Did you know?

*The Faculty is known to regularly win awards at competitions organised at the home front and internationally. Since 2014, UCSI's chemical engineering students have bagged more than 20 awards.*



**THI SHIKI, KOH WEE SIANG, NEOH YU XIANG**  
Bachelor of Chemical Engineering with Honours

**CHANDRA WIJAYA**  
Bachelor of Mechanical Engineering with Honours

Grand Champion in 13th National Chem-E Car Competition

## Subject Listing

### Year 1

- Organic Chemistry
- Material Engineering
- Physical Chemistry
- Mathematical Methods for Engineers I
- Mathematical Methods for Engineers II
- Statistics
- Engineering Physics
- Engineering Design and Drawing
- Applied Chemistry Laboratory
- Material Engineering Laboratory

### Year 2

- Safety, Health and Environment
- Fluid Mechanics
- Thermodynamics
- Numerical Analysis
- Mass Balance
- Energy Balance
- Mass Transfer
- Programming for Engineers
- Thermofluid Laboratory
- Numerical Analysis Laboratory
- Industrial Training I

### Year 3

- Chemical Process Simulation and Design
- Engineers in Society
- Process Dynamics and Controls
- Heat Transfer
- Separation Process
- Environmental Engineering
- Reaction Engineering
- Process Instrumentation and Instrumental Analysis
- Engineering Management and Economics
- Unit Operations Laboratory
- Reaction and Process Control Laboratory
- Energy and Environment Laboratory
- Industrial Training II

### Year 4

- Final Year Project A
- Final Year Project B
- Plant and Safety Engineering
- Process Equipment Design
- Surface Chemistry and Catalysis
- Plant Design Project I
- Plant Design Project II
- Chemical Process Design and Optimization

### Elective courses (select one specialisation only)

#### Specialisation 1: Environmental and Sustainable Engineering

Industrial Effluents Engineering • Renewable Energies • Bioremediation Engineering

#### Specialisation 2: Petroleum Refining and Downstream Processes

Natural Gas Engineering • Petroleum Refining Engineering • Petrochemical Manufacturing Processes

#### Specialisation 3: Biochemical Engineering

Bioprocess Engineering • Bioremediation Engineering • Microbiology for Engineers

## International Degree Pathways

### University of Queensland

- Bachelor of Engineering (Hons) Chemical Engineering(2+2/2+2.5)
- Bachelor of Engineering (Hons) Chemical and Biological (2+3)

## Career Opportunities

Process Engineer | Product Engineer | Environmental Engineer | Design Engineer | Production Engineer | Quality Engineer | Service Engineer | Health and Safety Engineer | Risk Engineer | Project Engineer | Material Engineer | Research Engineer | Cost Engineer | Lab Engineer | Instrumentation Engineer | Process Control Engineer



# Bachelor of Petroleum Engineering with Honours

(R2/524/6/0025) (05/2023) (MQA/FA9301)

*Under a well-balanced curriculum that aims to provide both breadth and depth across petroleum engineering specialisations, students will build a solid foundation in oil and gas exploration, production and development as they master core topics in petroleum geology, petroleum economy and well completion.*

*At the Faculty, students will have access to well-equipped laboratories and sophisticated computers equipped with licensed engineering software such as NEXUS, COMPASS, t-navigator and other commercial reservoir simulation software. Industrial-based projects will also open the way for insights from industry experts. By the end of this four-year programme, they will have learnt to address pressing issues and design innovative solutions that benefit society and organisations.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: [ge.mohe.gov.my/](http://ge.mohe.gov.my/))*

## Did you know?

UCSI University was awarded the 2020 Presidential Award for Outstanding Student Chapter for year 2020, an award given to the Top 5% Student Chapters (out of 400 universities) around the world.



## Career Opportunities

Drilling Engineer | Production Engineer | Field Engineer | Reservoir Engineer | Operation Engineer | Project Development Engineer | Mud Engineer | Well Completion Engineer | Cost Engineer | Workover Engineer | Process Engineer | Subsea Engineer | Offshore Engineer | Simulation Engineer | Health and Safety Engineer

## Subject Listing

### Year 1

- Organic Chemistry
- Material Engineering
- Physical Chemistry
- Mathematical Methods for Engineers I
- Mathematical Methods for Engineers II
- Statistics
- Engineering Physics
- Engineering Design and Drawing
- Material Engineering Laboratory

### Year 2

- Safety, Health and Environment
- Physical Geology
- Thermodynamics
- Numerical Analysis
- Fluid Mechanics
- Programming for Engineers
- Elements of Reservoir Rock and Fluid Properties
- Thermofluid Laboratory
- Numerical Analysis Laboratory
- Petrophysics Laboratory
- Industrial Training I

### Year 3

- Engineers in Society
- Petroleum Geology
- Drilling Engineering
- Reservoir Engineering I
- Reservoir Engineering II
- Oil and Gas Production Operations
- Well Completion
- Engineering Management and Economics
- Environmental Engineering
- Drilling Engineering Laboratory
- Petroleum Geology Laboratory
- Fieldwork
- Industrial Training II

### Year 4

- Final Year Project A
- Final Year Project B
- Enhanced Oil Recovery
- Natural Gas Engineering
- Formation Evaluation
- Reservoir Simulation
- Field Development Project I
- Field Development Project II
- Petroleum Economy
- Well Diagnosis and Treatment

### Elective courses (select one specialisation only)

#### Specialisation 1: Reservoir Simulation and Management

Advanced Reservoir Simulation  
Reservoir Management

#### Specialisation 2: Petroleum Refining and Downstream Processes

Petroleum Refining Engineering  
Petrochemical Manufacturing Processes

#### Specialisation 3: Oil Field Operation

Advanced Drilling Engineering  
Production System Planning

# Bachelor of Mechanical Engineering with Honours

(R2/521/6/0054) (05/2025) (MQA/FA9304)

*This programme offers a comprehensive range of core engineering science courses and practical projects to ensure it is highly integrated and industry-relevant. As they progress, students will be well-equipped to not only design mechanical components and systems but also solve engineering problems by applying different techniques and strong analytical skills. They will be exposed to the latest advances in engineering technologies and with the emphasis on experimental work, students will gain the skills needed to take on the challenge of designing products and process that are faster, more versatile and environmentally friendly.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: ge.mohe.gov.my/)*

## Did you know?

Assistant Professor Dr Yu Lih Jiun received the Chartered Engineer qualification awarded by the Institution of Mechanical Engineers (IMechE).



## Subject Listing

### Year 1

- Mathematical Methods for Engineers I
- Mathematical Methods for Engineers II
- Statistics
- Engineering Design and Drawing
- Circuit Theory I
- Engineering Statics
- Material Science
- Material Science Lab
- Engineering Software and Applications
- Manufacturing Processes

### Year 2

- Engineering Dynamics
- Electrical Power
- Thermodynamics I
- Thermodynamics Lab
- Fluid Mechanics I
- Fluid Mechanics Lab
- Solid Mechanics
- Solid Mechanics Lab
- System Dynamics
- Microcontroller Systems
- Numerical Analysis
- Safety, Health and Environment
- Industrial Training 1

### Year 3

- Engineers in Society
- Engineering Management and Economics
- Electrical Machine
- Instrumentation and Measurement
- Control Systems
- Thermodynamics II
- Fluid Mechanics II
- Mechanics of Machine
- Mechanical Engineering Design
- Heat Transfer
- Industrial Training 2

### Year 4

- Finite Element Analysis
- Mechanical Vibrations
- Production Planning and Control
- Integrated Design Project A
- Integrated Design Project B
- Final Year Project A
- Final Year Project B

### Elective Courses (Select 1 specialisation only)

#### Specialisation A: Green and Sustainable Technology

Green Vehicle  
Renewable Energy

#### Specialisation B: Advanced Materials and Manufacturing

Advanced Materials  
Non-Traditional Machining Processes

#### Specialisation C: Thermal Fluid Engineering

Computational Fluid Dynamics  
Heating, Ventilating & Air Conditioning

## International Degree Pathways

### University of Queensland Australia (2+2/2+2.5)

- Bachelor of Engineering (Hons) Mechanical

### University of Manitoba Canada (up to 2+2)

- Bachelor of Science Mechanical Engineering
- Bachelor of Science Mechanical Engineering (Aerospace option)

## Career Opportunities

Mechanical Engineer | Production Engineer | Mechanical Design Engineer | Manufacturing Engineer | Maintenance Engineer | Structural Engineer | Quality and Service Engineer | Material Engineer | HVAC Engineer | Project Engineer | Research Engineer

# Bachelor of Mechatronics Engineering with Honours

(R2/523/6/0241) (06/2027) (MQA/FA 3421)

*Integrating three major engineering disciplines, this programme places its main emphasis on the domains of mechanical engineering, electrical and electronic engineering and software engineering. Students will constantly analyse and design complex systems to meet challenges posed by emerging technologies. They will also learn a combination of mechanical, electronic and computer science techniques that will help them design, fabricate, assemble and maintain automation and modern manufacturing systems.*

*Expect to develop a solid understanding of the social, cultural, global and environmental responsibilities of the professional engineer while gaining high-level technical skills essential in managing modern engineering tasks.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: [ge.mohe.gov.my/](http://ge.mohe.gov.my/))*

## Did you know?

Assistant Professor Dr M.K.A. Ahamed Khan (left) and Assistant Professor Dr Elango Natarajan (right) represented UCSI University, receiving the Outstanding Volunteer Service Award (University Category) By IEEE Robotics and Automation Society (IEEE RAS) Malaysia Chapter.



## Subject Listing

### Year 1

- Mathematical Methods for Engineers I
- Mathematical Methods for Engineers II
- Statistics
- Engineering Design and Drawing
- Circuit Theory I
- Engineering Statics
- Material Science
- Material Science Lab
- Engineering Software and Applications
- Manufacturing Processes
- Digital Electronics I
- Analogue Electronic I

### Year 2

- Engineering Dynamics
- Electrical Power
- Thermodynamics I
- Thermodynamics Lab
- Fluid Mechanics I
- Fluid Mechanics Lab
- System Dynamics
- Numerical Analysis
- Circuit Theory II
- Digital Electronics II
- Safety, Health and Environment
- Industrial Training 1

### Year 3

- Engineers in Society
- Engineering Management and Economics
- Electrical Machine
- Instrumentation and Measurement
- Control Systems
- Microcontroller and Embedded System
- Fluid Power and Drives
- Fluid Power and Drives Lab
- Power Electronics
- Industrial Training 2

### Year 4

- Robotic Systems
- Signal and Systems
- Industrial Automation
- Integrated Design Project A
- Integrated Design Project B
- Final Year Project A
- Final Year Project B

### Elective Courses (Select 1 specialisation only)

#### Specialisation A: Machine Intelligence

Intelligent Systems  
Machine Vision and Image Processing

#### Specialisation B: Automation & Control

Advanced Control Systems  
Green Vehicle

#### Specialisation C: Advanced Manufacturing

Machine Vision and Image Processing  
Non-Traditional Machining Processes

International  
Degree Pathway

University Queensland (2+2.5)  
• Bachelor of Engineering (Hons) Mechatronic

Career  
Opportunities

Mechatronics Engineer | Robotics Engineer | Software Engineer | Industrial Designer | Mechanical Systems Engineer | Mechanical Engineer | Mechanical Design Engineer | Project Engineer | Electro-mechanical Engineer



# Bachelor of Civil Engineering with Honours

(R2/526/6/0075) (06/2026) (MQA/FA9819)

*In this programme, students will learn how to design, construct and maintain structures in the 'built environment'. They will apply what they learn to real-life projects where financial and ethical issues are taken into account. By the end of the programme, students will be well prepared to devise high impact solutions and change lives for the better.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: ge.mohe.gov.my/)*

## Did you know?



*Dr Ramez Al-Ezzi AbdulJalil Al-Mansob received a total of 5 Gold Medal Awards in 2019 at the 3rd Advanced Innovation & Engineering Exhibition (3rd AiNEX 2019), the Melaka International Intellectual Exposition (MIIEX 2019), the Sarawak Innovation & Technology Exhibition (SAINTEX 2.0 2019), the Ipoh International Summit on Professionalism, Research and Education (INSPIRED 2019), and the International Innovation and Invention Challenge via Exhibition (INTELLIGENT 2019).*

## Subject Listing

### Year 1

- Statistics
- Geomatics
- Geomatics Field Work
- Engineering Software and Application
- Civil Engineering Drawing
- Mathematical Methods for Engineers 1
- Mathematical Methods for Engineers 2
- Engineering Statics
- Mechanical and Electrical Systems
- Construction Technology

### Year 2

- Fluid Mechanics
- Numerical Analysis
- Engineering Dynamics
- Stress Analysis and Design
- Civil Engineering Materials Lab
- Materials in Civil Engineering
- Soil Mechanics
- Hydraulics
- Light Structure Lab
- Theory of Structure
- Environmental Engineering Analysis and Design
- Contract and Estimation
- Industrial Training 1

### Year 3

- Engineers in Society
- Geotechnical Materials and Analysis
- Reinforced Concrete Design
- Water and Wastewater Engineering
- Project Construction and Management
- Engineering Hydrology
- Geotechnical Design
- Structural Steel and Timber Design
- Highway and Transportation Lab
- Highway Engineering
- Transportation Engineering
- Industrial Training 2

### Year 4

- Capstone Design Project A
- Capstone Design Project B
- Final Year Project A
- Final Year Project B
- Construction Integrated Environment

### Elective Courses (Select 1 specialisation only)

#### Specialisation A: Water Resources Engineering

Groundwater Hydrology • Integrated Water Resources Management • Coastal Engineering

#### Specialisation B: Geotechnical and Transportation

Advanced Highway Engineering • Railway Engineering • Advanced Geotechnical Design

#### Specialisation C: Structural Analysis and Design

Advanced Reinforced Concrete Design • Bridge Design • Finite Element Analysis

International Degree Pathways

University of Manitoba, Canada (up to 2+2)  
• BSc Civil Engineering

University of Queensland (2+2/2+2.5)  
• Bachelor of Engineering (Hons) Civil

Career Opportunities

Building Control Surveyor | Consulting Civil Engineer | Contracting Civil Engineer | Site Engineer | Structural Engineer | Water Engineer | Environmental Engineer | Geotechnical Engineer | Materials Engineer | Transportation Engineer

# Bachelor of Electronics Engineering (Communication) with Honours

(R2/523/6/0219) (11/2026) (MQA/FA9300)

*Electronic communications underpin our everyday technologies, from TV and mobile phones to air travel. This programme integrates practical work and taught material infused with state-of-the-art technology, covering areas like analogue and digital communications, mobile and satellite communications, and electromagnetic waves. Students will also learn CST Microwave Studio, an industry development tool recognised around the world.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: ge.mohe.gov.my/)*

## Did you know?

*The UCSI IET On Campus is a student chapter of the Institution of Engineering and Technology – one of the world's largest engineering institutions with over 167,000 members in 150 countries. In 2018, the chapter received the IET On Campus First Runner Up in Malaysia. It continues to serve the student community with a wide range of industry visits, technical talks and competitive events.*



**YAP KAH YUNG**

*Bachelor of Engineering (Hons) Electrical and Electronic Engineering*

*Recipient IEM Gold Medal Award 2018*

## Subject Listing

### Year 1

- Technical Communication
- Calculus and Analytical Geometry II
- Circuit Theory I
- Digital Electronics I
- Analogue Electronic I
- Electromagnetic Theory I
- Mathematical Methods for Engineers I
- Electronic laboratory 1A
- Electronic laboratory 1B

### Year 2

- Advanced Circuit Theory and TL
- Engineering Design and Drawing
- Mathematical Methods for Engineers II
- Electronic Manufacturing Industry
- Computer Architecture
- Electronic Laboratory 2A
- Electrical Power
- Electronic Laboratory 2B
- Computing for Engineers
- Analogue Electronic II
- Digital Electronics II
- Industrial Training I

### Year 3

- Communication Circuits
- Electromagnetic Theory II
- Communication Laboratory 3B
- Communication Theory
- Environmental Engineering and Abatement Processes
- Numerical Analysis
- Electrical Machines
- Data Communication and Networks
- Microprocessor Systems
- Electronic Laboratory 3A
- Engineering and Management and Economics
- Optical Communication
- Engineers in Society
- Embedded System Design
- Industrial Training II

### Year 4

- Communication Systems
- Communication Sub-System Design
- Microwave System Design
- Antennas and EMC
- Digital Signal processing
- Digital System and HDLs
- Design Project
- Mobile and Satellite Communication
- Final Year Project A
- Final Year Project B
- Electronic Laboratory 4A
- Communication Laboratory 4B

**International  
Degree Pathway**

**University of Queensland (2+3) (2+2.5)**  
• Bachelor of Engineering (Hons) Electrical

**Career  
Opportunities**

Telecommunications Engineer | Broadcast Engineer | Computer Systems Engineer | Optics Engineer |  
Instrumentation and Controls Engineer | Biomedical Engineer | Optical Networks Technical Marketing Engineer |  
Satellite Communications Engineer | Electrical and Electronics Installer | Technical Support Engineer |  
Telecommunications Field Service Engineer

# Bachelor of Computer Engineering (Artificial Intelligence) with Honours

(N/523/6/0310) (05/2026) (MQA/PA 11675)

*This programme is curated specially to address the need for jobs that demand skills in the area of Artificial Intelligence (AI). It encompasses the learning of AI, Computer and Engineering. By espousing these areas, students can expect to grasp a keen understanding of the technology, its history, functionality and challenges in the application of AI. This programme covers the core theoretical foundations and provides advanced algorithmic, statistical and computer engineering knowledge. As students develop the adroitness in this field, gain new insights and smarter correlations, they will appreciate their transformation in the higher-order professional the industry needs.*



## Subject Listing

### Year 1

- Mathematical Methods for Engineers I
- Circuit Theory I
- Electromagnetic Theory
- Engineering Graphics and Design
- Computing for Engineers
- Mathematical Methods for Engineers II
- Analogue Electronics I
- Digital Electronics I
- Statistics
- Electrical and Electronic Lab 1
- Computer Architecture
- Technical Communication

### Year 2

- Circuit Theory II
- Instrumentation and Measurement
- Electrical Power
- Algorithm Design and Analysis
- Object Oriented Programming
- Safety, Health and Environment
- Introduction to Artificial Intelligence
- Software Engineering
- Java Programming
- Electrical & Electronic Lab 2
- Computer Engineering and AI Lab
- Industrial Training I

### Year 3

- Digital Signal Processing
- Engineering Management and Economics
- Microprocessor Systems
- Data Communication and Networks
- Embedded System Design
- Control Systems
- Engineers in Society
- Communication Theory
- Machine Learning
- Human Computer Interaction
- Instrumentation & Control Lab
- Industrial Training II

### Year 4

- Integrated Design Project 1
- Operating Systems
- Cybersecurity
- Integrated Design Project 2
- Elective 1
- Elective 2
- Elective 3
- Final Year Project A
- Final Year Project B

#### **Specialisation Area 1 (Business Analytics)**

Data Mining • Database Systems • Big Data

#### **Specialisation Area 2 (Computational Intelligence)**

Big Data • Machine Vision • Blockchain

#### **Specialisation Area 3 (Control and Intelligent System)**

Parallel Computing • Mobile Application Development • Advanced Instrumentation and Control

## Career Opportunities

System Engineer | Software Engineer | R&D Engineer | Data Scientist | Programmer | Machine Learning Engineer



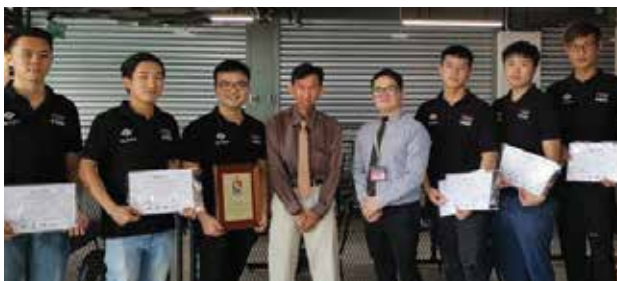
# Bachelor of Electrical and Electronics Engineering with Honours

(R2/523/6/0218) (11/2026) (MQA/FA9303)

*Electrical and Electronic Engineering is one of the broadest engineering disciplines and this programme will cover multiple subject areas like analogue electronics, microelectronic chip design, digital signal processing, power generation, protection and distribution, C++ programming, instrumentation and measurements control, renewable energy systems, and more. Students will also have the chance to learn MATLAB, PSICE and LABVIEW which are used to run simulations in projects and research.*

*\*This programme received a 100% graduate employability score in the Ministry of Higher Education's Graduate Employability 2020 survey. (source: ge.mohe.gov.my/)*

## Did you know?



UCSI is home to the Institute of Electrical and Electronics Engineers-Eta Kappa Nu (IEEE-HKN) Student Chapter - the top 10% of HKN Chapters. Our students interact with other top students from Massachusetts Institute of Technology, Purdue University and the University of California, Berkeley. This Student Chapter has received the Outstanding Student Chapter Award for four consecutive terms.

## Subject Listing

### Year 1

- Technical Communication
- Circuit Theory I
- Digital Electronics I
- Analogue Electronic I
- Mathematical Methods for Engineers I
- Electromagnetic Theory
- Mathematical Methods for Engineers II
- Computing for Engineers
- Engineering Design and Drawing
- Computer Architecture
- Statistics

### Year 2

- Circuit Theory II
- Electrical Power Lab
- Electrical Power
- Analogue Electronic II Lab
- Analogue Electronic II
- Digital Electronics II
- Industrial Training I
- Digital Electronics II Lab
- Numerical Analysis
- Control Systems
- Microcontroller and Embedded System
- Safety, Health and Environment

### Year 3

- Communication Theory
- Instrumentation and Measurement
- Data Communication and Networks
- Electrical Machines
- Electrical Machines Lab
- Engineering and Management and Economics
- Engineers in Society
- Industrial Training II
- Digital System and HDLs
- Energy Conversion and High Voltage Power
- Transmission
- Power Electronics

### Year 4

- Digital Signal processing
- Final Year Project A
- Power Systems
- Final Year Project B
- Power Systems Protection
- Integrated Design Project A
- Integrated Design Project B

### Track 1 (Power & Energy)

Electrical Power Quality • Renewable Energy • Power System Management and Smart Grid

### Track 2 (IC Design)

VLSI System • IC Reliability and Failure Analysis • Integrated Circuit Technology

### Track 3 (Internet of Things)

Big Data • Cybersecurity • Mobile Application Development

### Track 4 (RF and Microwave Communication)

Microwave System Design • Optical Communication • RF and Microwave Engineering

International Degree Pathways

University of Queensland (2+2.5)

• Bachelor of Engineering (Hons) Electrical

University of Manitoba, Canada (up to 2+2)

• Bachelor of Science Electrical Engineering

Career Opportunities

Design Engineer | Project Engineer | R&D Engineer | System Design Engineer | Analog Design Engineer | Test Engineer | PCB Design Engineer | Electrical Engineer | Digital Design Engineer | Quality Control Engineer/Specialist | Research Engineer | Software Engineer | Sales Engineer | Product Engineer

# Bachelor Of Environmental Engineering With Honours

(N/526/6/0146) (01/2027) (MQA/PA 12251)

*The Environmental Engineering programme embraces broad environmental concerns including water quality and supply, groundwater protection and remediation, wastewater treatment, indoor and outdoor air quality, solid and hazardous waste disposal, supply of safe drinking water, cleaning contaminated sites, preserving sensitive wetlands, and prevention of pollution through product and process design. It involves efforts related to environmental sustainability, which is to improve recycling, waste disposal, public health, water, and air pollution control, as well as awareness and knowledge of environmental engineering laws. Through this programme, students can push for a sustainable planet with living choices that make a difference.*



## Subject Listing

### Year 1

- Engineering Static and Dynamic
- Fluid Mechanics
- Environmental Sustainability
- Sustainable Materials
- Mathematical Methods for Engineers 1
- Mathematical Methods for Engineers 2
- Mechanical and Electrical Systems
- Environmental Chemistry
- Safety Health and Environment
- Engineering Design and Drawing
- Technical Communication

### Year 2

- Statistics
- Geo-Environmental Engineering
- Engineering Hydrology
- Sustainable Design and Construction
- Stress Analysis and Design
- Water and Wastewater Treatment
- Sustainable Transportation
- Contaminant Hydrology
- Environmental Software and Application
- Environmental Field Trip
- Air Quality Control
- Industrial Training 1

### Year 3

- Passive and Active Environmental Controls
- Design Water and Wastewater Treatment System
- Engineering Management and Economic
- Energy Efficiency and Conservation
- Solid and Hazardous Waste Management
- Renewable Energy and Resources
- Urban Transportation Planning
- Environmental Impact Monitoring
- Building Operation and Facilities Management
- Safety Process and Risk Management
- Industrial Training 2

### Year 4

- Final Year Project A
- Capstone Design Project 1
- Safety Certification, Compliance and Auditing
- Capstone Design Project 2
- Final Year Project B
- Township Design and Planning
- Engineers in Society
- Elective Course (*choose 1 course only*):  
Introduction to Artificial Intelligence  
Technopreneurship  
Finite Elements Method

## Notable Student Projects

Following are some notable student projects recognised for their creativity, innovativeness and practicality. All of them employ the latest in technology and engineering practices.



This bio-inspired drone can both fly and walk and is a new solution to explore new environments with challenging landscapes. It can combine legged mobility and fast aerial mobility for autonomous exploration.



This intelligent firefighting drone is developed as a better and safer alternative to deal with high-rise fires. It can serve as the "eyes" for firefighters adding completing existing firefighting resources.



The energy efficient glass cutter robot is developed as a friendly gardener to offer automatic solutions of grass trimming in small household. It is constructed using 3D printing technology and powered by solar energy.



This 3D printer is affordable and has good performance exposing the latest additive manufacturing technology. While it is constructed using recycled materials, it is able to print prototypes in delicate manner.



The miniature solar powered UV index indicator is developed to alert and remind users of need to carryout protective measure such as applying sun screen, protective cloth, UV sun glasses, etc. It also helps people to avoid extensive exposure to UV.



This partial simulated temperature control system is developed for chemical industries. It aims to achieve effective control of temperature so that the production rate of chemical product can meet the desired quality.



# Facilities

The state-of-the-art facilities and laboratories that our students work and study in have played a significant role in preparing them for the real world. Here are some of them.



The Advance Chemical Technology Lab promotes a holistic teaching and learning process; encouraging multiple cross-disciplinary research activities.



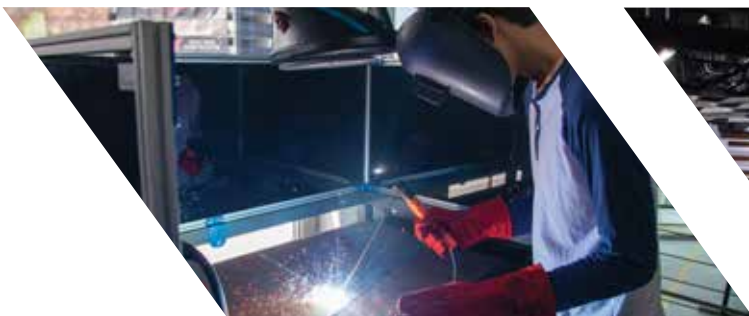
The Advance Industrial Robotic and Cyber Physical Laboratory has handling robots, mobile robots and task robots; the platform demonstrates the intelligent and adaptable control of production.



The Engineering Software Solution and AI Research lab is suitable for training, workshops and programming. All computers configured for high performance.



Thermofluid-lab allows students to conduct research in thermodynamics, fluid mechanics, and heat transfer.



The welding and mechanical workshop enables hands-on cutting, forming, casting, machining and practical welding.



This design studio has a complete set of E&E testing equipment such as DC power supply, oscilloscopes, and digital multi meter.

# Facilities



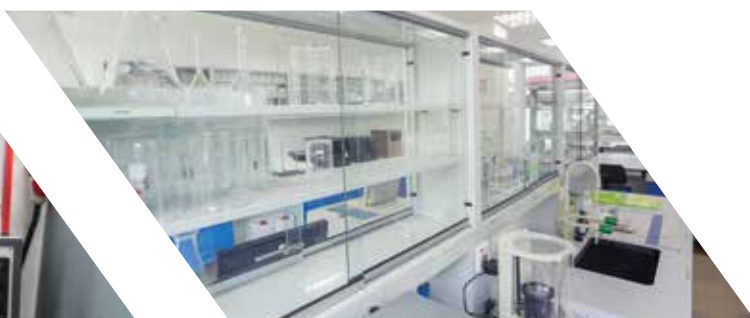
In the concrete soil and highway lab, students can test the quality of concrete, aggregate, soil, pavement and other cementitious materials.



This research lab allows students to conduct R&D and prototyping on Solar PV research, Power Electronic Converter, etc.



The power, machine and drive lab allows students to do experiments related to electrical power systems, conveyor belts, etc.



This instrumentation lab includes Atomic Absorption Spectroscopy, Fourier Transform Infrared Spectroscopy, UV-VIS spectroscopy, etc.



In the material science and petrology soil mechanics lab, students can learn about material structure, properties, performance and its processes.



The petrochemical lab includes a viscometer bath, flashpoint tester, seta oil test centrifuge, rotary evaporator, etc.

# Hall Of Fame

## **KHAW LIANG FA**

*Alumnus*

*Bachelor of Chemical Engineering with Honours*

*Selected by Imperial College London in 2018 to do research on the enhancement of the performance of silica nanoparticles in protein crystallisation by changing the particle morphology and surface chemistry.*



## **BRYAN MA YUONG KAI**

*Alumnus*

*Bachelor of Chemical Engineering with Honours*

*Selected for research attachment at Imperial College London in 2019. His focused on the advancement of protein crystallisation by establishing the soft templates as a novel technique to improve the uncontrollability of nucleation and facilitating the interaction between the protein molecules.*



## **THI SHIKI**

*Alumna*

*Bachelor of Chemical Engineering with Honours*

*Advanced research in DNA nanotechnology with the aim of innovating protein crystallisation, a process which produces the crystals needed to study the molecular structure of protein for various pharmaceutical and biotechnological applications.*



## **KHOO HON SERN (RIGHT)**

*Current student*

*Bachelor of Mechatronics Engineering with Honours*

## **HOON JIAN WEN (LEFT)**

*Alumnus*

*Bachelor of Electrical and Electronics Engineering with Honours*

*Both Khoo Hon Sern and Hoon Jian Wen were selected by University of Queensland in 2019 for a one month research attachment.*



## **MUHAMMAD HAFIDZ KHAIRUDIN**

*Alumnus, Bachelor of Electrical and Electronics Engineering with Honours*

*Selected by University of Queensland in 2018 to research on the economic analysis of different types of Photovoltaic Array technologies.*



## **HAIDER MOHAMMED**

**ABDULLAH HAIDER (RIGHT)**

*Current student*

*Bachelor of Mechanical Engineering with Honours*

## **ABDULSALAM MOHAMMED**

**ABDULLAH HAIDAR (LEFT)**

*Current student*

*Bachelor of Electrical and Electronics Engineering with Honours*

*Both were selected in 2019 for a two-month research attachment at Shibaura Institute of Technology, Japan. Their research was on the topic of 'Artificial Muscles'.*





# Hall Of Fame

(l to r) **CHONG YING HAI**

*Bachelor of Electrical and Electronics Engineering with Honours*

**KOH JIA SHUN**

*Bachelor of Mechatronics Engineering with Honours*

**NG WENG MUN**

*Bachelor of Mechatronics Engineering with Honours*

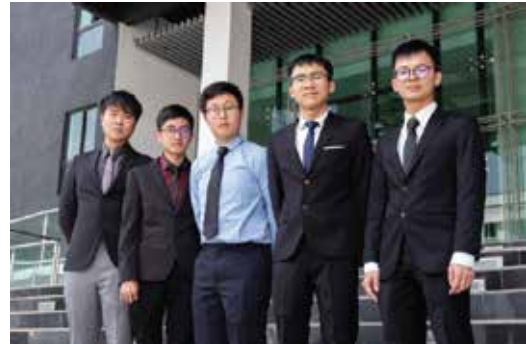
**LIM KEL VIN**

*Bachelor of Mechatronics Engineering with Honours*

**NGO KAH LOCK**

*Bachelor of Mechatronics Engineering with Honours*

*All these are current students selected to go to NTUT, Taiwan through the Star Trek programme in 2018 and 2019.*



**JONG CHA YONG**

*Alumnus*

*Bachelor of Chemical Engineering with Honours*

*Underwent research attachment in Tsinghua University in 2018 working on crystallisation avidin protein molecules using synthesised 3-dimensional cubic DNA origami.*



**WONG JUN YING**

*Alumnus*

*Bachelor of Electrical and Electronics Engineering with Honours*

*Selected by University of Queensland in 2018 to investigate abnormal power patterns observed in solar arrays in a plant in Gatton, Australia.*



**ANG KOON MENG**

*Alumnus*

*Bachelor of Mechatronics Engineering with Honours*

*Champion in the Tan Sri Ir Yusoff Ibrahim Best Final Year Project (FYP) Competition held at Wisma IEM in 2019.*



**LING POH CHOO, WONG YOONG SEONG**

*Alumni*

*Bachelor of Civil Engineering with Honours*

*First Runner Up Pertandingan Inovasi Perlindungan Cerun 2018.*



# Academic Requirements

INTAKES: JANUARY, MAY AND SEPTEMBER

QUALIFICATIONS	FOUNDATION IN SCIENCE	DIPLOMA IN ELECTRICAL AND ELECTRONIC ENGINEERING	DIRECT ENTRY INTO BACHELOR'S DEGREE (ALL ENGINEERING MAJORS)
SPM/O-Level	5 credits inclusive of Mathematics and 1 Science subject	Minimum 3 credits including Mathematics and one relevant science/technical/vocational subject and a pass in English	N/A
STPM		Pass in Mathematics, English and one relevant science/technical/vocational subject at the SPM level	Minimum 2Cs including Mathematics and one relevant Physical Science subject
A-Level		Pass in Mathematics, English and one relevant science/technical/vocational subject at the SPM level	Minimum 2Ds including Mathematics and one relevant Physical Science subject
UEC	3 credits inclusive of Mathematics and 1 Science subject	Pass in Mathematics, English and one relevant science/technical/vocational subject at the SPM level	Minimum 5Bs including Mathematics and one relevant Physical Science subject
CPU	N/A	N/A	Minimum average of 60% in 6 subjects, inclusive of a minimum score of 60% in Mathematics and one relevant Physical Science subject
Local Matriculation	N/A	N/A	Minimum CGPA 2.0
Foundation from other University/College	N/A	N/A	Minimum CGPA 2.0
WAEC/NECO	N/A	Minimum 3 C's; inclusive of Mathematics and Science	A maximum aggregate of 15 points out of best 5 subjects, inclusive of minimum B in Mathematics and one relevant Physical Science subject
Diploma/Advance Diploma/Degree/ equivalent	N/A	N/A	Minimum CGPA 2.0 Subject to Faculty discretion after reviewing transcript and syllabus. Max credit transfer of 30% of the programme total credits
Other qualifications deemed equivalent to SPM/O-Level by Malaysian Qualifications Agency	Overall average of 60% inclusive of Mathematics and 1 Science subject	Minimum 3 credits including Mathematics and one relevant science/technical/vocational subject and a pass in English	N/A
Other qualifications deemed equivalent to STPM/A-Level by Malaysian Qualifications Agency	Overall average of 50% inclusive of Mathematics and 1 Science subject	Pass in Mathematics, English and one relevant science/technical/vocational subject at the SPM level	Minimum overall average of 60%, inclusive of minimum 60% in Mathematics and one relevant Physical Science subject
International Baccalaureate	N/A	N/A	Minimum 26/42 points from 6 subjects (inclusive Mathematics and one relevant Physical Science subject)
SAM	N/A	N/A	Minimum average of 60% in 5 subjects, inclusive of minimum scores of 60% in Mathematics and one relevant Physical Science subject
SACE/AUSMAT/ TEE/SAM	N/A	N/A	Minimum overall average of 60%, inclusive of a minimum score of 60% in Mathematics and one relevant Physical Science subject
WACE/NTEC	N/A	N/A	Minimum overall average of 60%, inclusive of minimum 60% in Mathematics and one relevant Physical Science subject
Certificates from Polytechnics from relevant field	N/A	Minimum 50% average	N/A

Upon successful completion of the diploma programme, students will gain up to 30% of credit transfer of the total credits, depending on the chosen degree programme.

# English Language Requirements

	QUALIFICATIONS	DIPLOMA	DEGREE
<b>Local Students</b>	SPM English Language	A Minimum grade of B+	
	SPM English Language 1119/O-Level English/IGCSE	A minimum grade of C	
	UEC English	A Minimum grade of A2	
	MUET	Band 3	
	<i>Note: In the event that the English language requirements are not met, applicants will be required to take the Basic English and English Foundation for in-session academic enhancement concurrently with the programme.</i>		
<b>International Students</b>	MUET	Band 3	
	IELTS	Band 5.0	
	TOEFL iBT	A Minimum Score of 42	
	Pearson Test of English	A Minimum Score of 47	
	Cambridge English Qualification and Tests	A Minimum Score of 154	
	Cambridge Linguaskill	A Minimum Score of 154	
	<i>Note: International applicants who do not meet the respective academic programme's English Language Requirement will need to improve their proficiency by enrolling into the English for Tertiary Education programme (R/KJP/00920-00929) which helps them prepare for attaining a required band score. Placement into the various levels of the English for Tertiary Education programme depends on the English Language qualification students have at the point of admission and/or the outcome of the English Placement Test.</i>  <i>The applicants who have met the respective academic programme's English Language Requirement may be advised by Faculty to improve their proficiency by undertaking the additional English proficiency courses.</i>		

## General Courses (MPU)

### COMPULSORY FOR ALL STUDENTS

DEGREE PROGRAMMES		DIPLOMA PROGRAMMES	
MALAYSIAN STUDENTS	INTERNATIONAL STUDENTS	MALAYSIAN STUDENTS	INTERNATIONAL STUDENTS
<ul style="list-style-type: none"> <li>• Ethnic Relations</li> <li>• Islamic Civilisation and Asian Civilisation</li> </ul>	<ul style="list-style-type: none"> <li>• Malaysian Studies</li> <li>• Communication in Bahasa Melayu 3</li> </ul>	<ul style="list-style-type: none"> <li>• Malaysian Studies</li> </ul>	<ul style="list-style-type: none"> <li>• Communication in Bahasa Melayu 2</li> </ul>
ALL STUDENTS		ALL STUDENTS	
<ul style="list-style-type: none"> <li>• U2 – University Life</li> <li>• U2 – Technical Communication</li> <li>• U3 – Malaysian Experiential Tourism/Malaysian Ethnic Food</li> <li>• U4 – Extra-curricular Learning Experience 1 to 3</li> </ul>		<ul style="list-style-type: none"> <li>• U2 – Study Skills and Employability</li> <li>• U3 – Malaysian Eco-Tourism/Malaysian Traditional Food</li> <li>• U4 – Extra-curricular Learning Experience 1 to 2</li> </ul>	

While the above information is accurate at the time of printing, please note that entry requirements are subject to change. Please visit the university website for the most updated information.



**UCSI EDUCATION SDN BHD** [198901008177 (185479-U)]

**KUALA LUMPUR CAMPUS** DU020(W)

1, Jalan Menara Gading, UCSI Heights (Taman Connaught) Cheras, 56000 Kuala Lumpur, Malaysia.  
General Line (+603) 9101 8880 Course Enquiry (+603) 9101 8882 Fax + (603) 9102 2614

**KUCHING CAMPUS** DU020-02(Q)

Lot 2976, Block 7, Muara Tebas Land District, Sejingkat, 93450 Kuching, Sarawak, Malaysia.  
Tel + (6082) 596 965 Fax + (6082) 596 975

**TERENGGANU CAMPUS** DU020-01(T)

Bukit Khor, Pt 11065, Mukim Rusila, 21600 Marang, Terengganu, Malaysia.  
Tel + (603) 628 1880 / 1889 Fax + (603) 628 1885

**SPRINGHILL (PORT DICKSON) CAMPUS** DU020(W)

No. 2, Avenue 3, Persiaran Springhill, 71010 Port Dickson, Negeri Sembilan, Malaysia.  
General Line (+606) 648 8888 Course Enquiry: (+603) 9101 8882

 **UCSI UNIVERSITY**  **UCSIUNI**  **info.enq@ucsiuniversity.edu.my**