FACULTY OF ENGINEERING, TECHNOLOGY AND BUILT ENVIRONMENT
Malaysian universities that featured in the rankings

<table>
<thead>
<tr>
<th>Rank</th>
<th>2019 Rank</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>70</td>
<td>87</td>
<td>Universiti Malaya (UM)</td>
</tr>
<tr>
<td>159</td>
<td>202</td>
<td>Universiti Putra Malaysia (UPM)</td>
</tr>
<tr>
<td>160</td>
<td>184</td>
<td>Universiti Kebangsaan Malaysia (UKM)</td>
</tr>
<tr>
<td>165</td>
<td>207</td>
<td>Universiti Sains Malaysia</td>
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<tr>
<td>217</td>
<td>228</td>
<td>Universiti Teknologi Malaysia</td>
</tr>
<tr>
<td>442</td>
<td>481</td>
<td>UCSI University</td>
</tr>
<tr>
<td>482</td>
<td>521-530</td>
<td>Universiti Teknologi Petronas (UTP)</td>
</tr>
<tr>
<td>511-520</td>
<td>601-650</td>
<td>Taylor’s University</td>
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<tr>
<td>541-550</td>
<td>-</td>
<td>Management and Science University (MSU)</td>
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<tr>
<td>591-600</td>
<td>601-650</td>
<td>Universiti Utara Malaysia (UUM)</td>
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<tr>
<td>651-700</td>
<td>651-700</td>
<td>International Islamic University Malaysia (IUM)</td>
</tr>
<tr>
<td>651-700</td>
<td>751-800</td>
<td>Universiti Teknologi Mara (UITM)</td>
</tr>
</tbody>
</table>

UCSI’s Year of Milestones

- Malaysia’s best private university for two consecutive years.
- Ranked in the top 2% of all universities in the world.
- A top six university in Malaysia, along with the nation’s five research universities.
- One of seven Malaysian universities in the top 500.
- Malaysia’s best private university under 50 years old.
- One of the world’s top 70 young universities.
- A top 100 university in the world for performing arts twice in a row.
- Malaysia’s foremost music school and one of the best in the region.

1 in 5 UCSI students obtain a merit-based government scholarship or grant.

97.8% of our co-op partners would like to rehire UCSI interns.

UCSI is rated in Tier 5 (Emerging Universities) in SETARA 2017, placing it on a par with established foreign branch campuses in Malaysia.

Over 35% of UCSI’s academic staff are PhD holders and a further 17% are pursuing their doctorate.

The 2015 average at private higher education institutions in Malaysia is 16%.

Over 30% of UCSI’s student population is international.

Students from more than 110 nations have studied at UCSI.
WELCOME TO UCSI
MALAYSIA’S #1 PRIVATE UNIVERSITY

UCSI University opens door for students everywhere. It collaborates with the world’s leading universities, engages the best minds and partners with global companies.

For the second consecutive year, UCSI University is Malaysia’s best private university in the QS World University Rankings 2020. UCSI rose 39 spots from its previous rankings to be ranked 442 in the world. It is a top seven university in Malaysia and the only private and non-government linked institution in the country to be inducted in the Top 500 amongst the world’s universities for the two years straight. This renewed recognition placed the University in the top 2% of all universities worldwide, making it one of the most prestigious universities in the country.

UCSI’s Institute of Music (IMus) is also distinguished as a global top 100 music school for performing arts twice in a row in the QS World University Rankings by Subject 2018 and 2019. UCSI was previously distinguished as Asia’s fastest rising university in the QS University Rankings: Asia 2018 after making the meteoric 131-spot climb. Other than that, UCSI is rated in Tier 5 (Emerging Universities) – the highest rating achieved by universities under 15 years old – in SETARA 2017, on par with established foreign branch campuses in Malaysia.

Long renowned for its excellent track record in teaching and learning, UCSI is quickly making a name for itself in research and innovation. The number of research publications has increased by 155% from 2013. There was over 900% increase in UCSI’s citation numbers from 2014 to 2017. The research funding had also increased by three times just between 2016 and 2017. It is no wonder that many of UCSI academic staff are PhD holders.

This distinction opens doors for UCSI students and staff when it comes to collaboration with the world’s best companies, research institutes and universities. 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 amongst others. A batch of Pharmacy students also furthered research at the University of British Columbia. More endeavours are in the pipeline with leading universities in the Ivy League, the Russel Group, Universitas 21 and Australia’s Group of Eight.

More than 10,000 students from over 110 nations study at UCSI, making the campus a vibrant melting pot of culture and diversity. The University runs what is virtually Malaysia’s largest university-industry network through its Employment and Co-Operative Placement (Co-Op) programme, which provides employment support services for UCSI’s undergraduate 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, amongst many others. Above that, 97.8% of them state that they would rehire UCSI’s interns.

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.

MORE THAN 100 ACCLAIMED PROGRAMMES IN
MEDICINE | PHARMACY | ENGINEERING | APPLIED SCIENCE | BUSINESS | IT | ARCHITECTURE | SOCIAL SCIENCES | MUSIC | HOSPITALITY AND TOURISM MANAGEMENT | CREATIVE ARTS AND DESIGN
At present, the operational capacity at UCSI's Kuala Lumpur campus stands at more than one million ft(2), creating a state-of-the-art learning space. Popular with students and parents, its designs embody the zeitgeist of the 21st century dynamism and interconnectivity. Housing science labs, interactive learning spaces, lecture theatres, recital halls, commercial areas, classrooms, hostels, sports facilities and a multi-level parking facility, the present complex will change the way how students perceive and experience education.

Job done? Not a chance. UCSI's recent campus expansion is merely a microcosm of a far grander plan. More development will be undertaken to transform the Kuala Lumpur campus into a prominent education city that defines the Cheras skyline. UCSI Hospital is also on the verge of completion. Offering the American model of clinical practice patientcare, this private teaching hospital is purposed to turn Springhill into a vibrant hub of healthcare, education and medical tourism. Over in Kuching, UCSI's eponymous hotel doubles up as its Sarawak campus, providing students with the latest facilities and learning spaces.

Join the education revolution today.
Established in 1992, the Faculty of Engineering, Technology and Built Environment is one of the strongest faculties at UCSI University. A confluence of practical studies and theoretical learning, the Faculty 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.

Adding to its renown is its expertise – which is extensive. Students learn from esteemed academics – a rich mix of industry practitioners, professors and informed researchers – who have established lasting bonds with the industry and leading-edge universities across the globe. The academics build on two vital qualities: An eagerness to share their knowledge and a desire to engage students in the Faculty’s research projects. Supported by its very own custom-built campus where students will have access to industry-standard facilities and engineering software and technology, the Faculty continues to assert its role as a place of creativity and exceptional learning and teaching.

This has led to tie-ups with partner universities across the globe, enabling the Faculty to make headway in high impact research collaborations. 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 and Tsinghua University in China.

Each of these features is woven into the Faculty’s long-standing tradition of excellence, where its sterling reputation is matched only by the many achievements of its teaching staff, students and graduates. 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.
The demand for engineers is a constant one. From time immemorial, engineers have contributed pivotal technologies that have transformed the spheres of manufacturing, communications, healthcare, energy, business and IT. And 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). We provide that at UCSI through our foundation pathway in engineering. And with a special focus on engineering design and advanced engineering technology, we provide a pre-university environment that allows you to pursue your affinities and delve deep into your preferred field of study from day one.

At UCSI, you will learn from esteemed professors and academics who work on solutions that address global problems. Their guidance will expand your horizons and you will see first-hand how the best engineering solutions are derived not only through technical excellence, but through creativity, innovation, cultural awareness and entrepreneurial know-how. You will also take part in industry visits and you will enjoy avenues to apply your knowledge at state-of-the-art laboratories and facilities.

This dynamic environment is what you can look forward to during your pre-university years. And as you lay the groundwork for further studies in Engineering, you will appreciate how this is more than a prep course. It’s a springboard to a consequential career. Join us and engineer the future.
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.

### Guidance From The Best

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
  - BEng (Hons) Electrical and Electronic Engineering (UMIST, UK), PhD in Microwave Engineering (UMIST, UK)

- **Professor Dato’ Dr Ahmad Bin Ibrahim**
  - Professor of Environmental Management
  - BChem Eng (Monash)
  - PhD Wastewater Engineering (Newcastle)
  - Fellow Academy of Sciences Malaysia

- **Professor Ir Dr Barkawi Bin Sahari**
  - Professor of Mechanical Engineering
  - BSc (Hons) Mechanical Engineering (University of Nottingham, UK)
  - PhD in Mechanical Engineering (University of Nottingham, UK)

- **Assistant Professor Ir Dr Deprizon Syamsunur**
  - Assistant Professor, Civil Engineering
  - PhD Highway and Transportation Engineering (UKM)
  - MSc Highway and Transportation Engineering (UKM)
  - ST Highway and Transportation Engineering (Universitas Islam, Indonesia)

- **Assistant Professor Dr Ang Chun Kit**
  - Dean, Faculty of Engineering, Technology and Built Environment
  - BEng (Hons) Mechatronic Engineering (UCSI University)
  - PhD in Mechanical Engineering (UPM)

- **Assistant Professor Dr Lim Wei Hong**
  - Head of Department, Mechanical Engineering
  - PhD Electrical and Electronics Engineering
  - BEng (Hons) Mechatronic Engineering

- **Ir Associate Professor Dr Rodney Tan Hean Gay**
  - Associate Professor
  - BSc E&E Engineering (Aberdeen’s Robert Gordon University, UK), MSc Microelectronic Engineering (Liverpool John Moores University, UK),
  - PhD Electrical Engineering (UNITEN)

- **Assistant Professor Dr Kiew Peck Loo**
  - Lecturer
  - B Chemical Engineering (USM)
  - PhD Chemical Engineering (USM)
Bachelor of Engineering (Hons) Chemical Engineering

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 – from nanotechnology and oil refining to conversion of biomass or waste valuable products. At UCSI, students are exposed to a myriad of new technologies that are rapidly reshaping the society we live in.

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.

Grand Champion in 13th National Chem-E Car Competition

THI SHIKI, KOH WEE SIANG, NEOH YU XIANG
Bachelor of Engineering (Hons) Chemical Engineering

CHANDRA WIJAYA
Bachelor of Engineering (Hons) Mechanical Engineering

Gold Medal
International Engineering Invention & Innovation (i-ENVEX) 2016

SAROJINI D/O CHANDERAN, MOHAMAD RAWAD JALWAN, PUVANESWARI D/O SUPPRAMANIAM, KHESHAWARTHINI D/O SANThERASAYGARcAM
Bachelor of Engineering (Hons) Chemical Engineering

Subject Listing

YEAR 1

Organic Chemistry
Calculus and Analytical Geometry II
Material Engineering
Physical Chemistry
Mathematical Methods for Engineers I
Engineering Physics
Engineering Graphics and Design
Chemical Engineering Laboratory I
Chemical Engineering Laboratory II

YEAR 2

Mathematical Methods for Engineers II
Electrical Principles
Fluid Mechanics
Introduction to Chemical Engineering Processes
Numerical Methods
Mass Transfer
Introduction to Material and Energy Balances
Thermodynamics
Chemical Engineering Laboratory III
Chemical Engineering Laboratory IV
Chemical Engineering Laboratory V
Co-operative Placement 2

YEAR 3

Chemical Process Simulation and Design
Engineers in Society
Process Dynamics and Controls
Heat Transfer
Separation Process
Environmental Engineering
Surface Chemistry and Catalysis
Reaction Engineering
Process Instrumentation and Instrumental Analysis
Chemical Engineering Laboratory VI
Chemical Engineering Laboratory VII

YEAR 4

Engineering Management and Economics
Final Year Project A
Final Year Project B
Plant and Safety Engineering
Process Equipment Design
Plant Design Project I
Plant Design Project II
Petroleum Refining Engineering
Chemical Process Design and Optimization
Co-operative Placement 4

Elective Courses (select three courses only)
Fuels and Combustion
Polymer Technology
Natural Gas Engineering
Petrochemical Industries
Corrosion
Nanotechnology
Biochemical Engineering
Petroleum Geoscience

*General Courses (MPU) are compulsory for all students. Please refer to page 11.

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

*Terms and conditions apply

International Degree Pathway*

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

Royal Melbourne Institute of Technology (1.5+2.5)
Bachelor of Engineering (Chemical Engineering) Honours
Bachelor of Engineering (Hons) Petroleum Engineering

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 learned to address pressing issues and design innovative solutions that benefit society and organisations.

DID YOU KNOW?

2018 Student Chapter Gold Standard awarded by SPE International

This prestigious designation is in recognition of the Society of Petroleum Engineers (SPE) student chapter programmes in industry engagement, operations and planning, community involvement, professional development, and innovation.

First prize
Mud Innovation Competition in Borneo Oil and Gas Symposium 2017

MANSOOR ALI KHAN, TAJ UDDIN, ABAN NOBEL BONAN KIMO, MARWAN MOHAMMED ABDULLAH AL-MURISI

Bachelor of Engineering (Hons) Petroleum Engineering

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
- Calculus and Analytical Geometry II
- Material Engineering
- Physical Chemistry
- Mathematical Methods for Engineers I
- Engineering Physics
- Introduction to Petroleum Engineering
- Engineering Graphics & Design
- Petroleum Engineering Lab I

YEAR 2

- Mathematical Methods for Engineers II
- Physical Geology
- Thermodynamics
- Numerical Methods
- Fluid Mechanics
- Computing for Engineers
- Drilling Engineering
- Safety in Oil and Gas Industry
- Petroleum Engineering Lab II
- Petroleum Engineering Lab III
- Petroleum Engineering Lab IV
- Cooperative Placement 2

YEAR 3

- Engineers in Society
- Transport Phenomena
- Elements of Reservoir Rock and Fluid Properties
- Petroleum Geology
- Reservoir Engineering
- Oil and Gas Production Operations
- Well Completion
- Engineering Management & Economics
- Environmental Engineering
- Petroleum Engineering Lab V
- Petroleum Engineering Lab VI
- Field Trip

YEAR 4

- Final Year Project A
- Enhanced Oil Recovery
- Natural Gas Engineering
- Formation Evaluation
- Reservoir Simulation
- Field Development I
- Field Development II
- Petroleum Economy
- Well Diagnosis and Treatment
- Final Year Project B
- Cooperative Placement 4

Elective Courses (select one course only)
- Petroleum Refining Engineering (Elective)
- Geophysics (Elective)

*General Courses (MPU) are compulsory for all students. Please refer to page 15.
Bachelor of Engineering (Hons) 
Mechanical Engineering 
(R2/521/6/0054) (05/2023) (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.

| DID YOU KNOW? |

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

Dr Mohammed W. Muhieddeen Al-Gailani received the Best Presenter Award in the 2nd International Symposium on Fluid Mechanics and Thermal Sciences 2018.

International Degree Pathway*

University of Manitoba (up to 2+2)
BSc Mechanical Engineering
University of Queensland (2+2)
Bachelor of Engineering (Hons) Mechanical Engineering
Royal Melbourne Institute of Technology (1.5+2.5)
Bachelor of Engineering (Mechanical Engineering) Honours
Royal Melbourne Institute of Technology (1+3.5)
Bachelor of Engineering (Aerospace Engineering)

Subject Listing

YEAR 1
Calculus & Analytical Geometry II
Engineering Graphics & Design
Mathematical Methods for Engineers I
Circuit Theory I
Engineering Statics
Electrical Power
Mechanical Lab I (Electrical Power Lab)
Material Science
Mechanical Lab III (Material Science Lab)
Mechanical Drawing & Assembly Techniques

YEAR 2
Mathematical Methods for Engineers II
Computing for Engineers
Engineering Dynamics
Manufacturing Processes
Fluid Mechanics
Thermodynamics I
Mechanical Lab IV (Thermo-fluids Lab)
Electrical Machine
Mechanical Lab II (Electrical Machine Lab)
System Dynamics
Introduction to Microprocessor
Cooperative Placement 2

YEAR 3
Engineers in Society
Engineering Management & Economics
Numerical Analysis
Instrumentation and Measurement
Control Systems
Mechatronic Lab V (Control Systems Lab)
Introduction to Production & Manufacturing
Stress Analysis and Design
Mechanical Lab V (Stress Analysis and Design Lab)
Mechanical Engineering Design
Elements of Heat Transfer
Thermodynamics II
Mechanical Lab VI (Thermodynamics and Heat Transfer Lab)
Machines of Machine
Cooperative Placement 3

YEAR 4
Mechanical Vibrations
Mechanical Design With Finite Element Methods
Environmental Engineering
Design Project (Capstone Project)
Final Year Project A
Final Year Project B
Elective Courses (Select two courses only):
- Heating, Ventilating & Air Conditioning
- Power Plants
- Internal Combustion Engines
- Acoustics And Noise Control

*General Courses (MPU) are compulsory for all students. Please refer to page 15.

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

*Terms and conditions apply
Bachelor of Engineering (Hons)  
**Mechatronic Engineering**

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.

**DID YOU KNOW?**

Two Mechatronic Engineering students, Ngo Kah Lock (left) and Chong Ying Hai (right), were selected for a four month research exchange programme in National Taipei University of Technology under the supervision of Professor Dr Leehter Yao (middle).

Some notable projects completed by Mechatronic Engineering students: (a) low cost DIY 3D printer, (b) drone with flying and walking capabilities and (c) smart vacuum cleaner robot.

**International Degree Pathway**

- **University of Queensland (2+2.5)**  
  Bachelor of Engineering (Hons) Mechatronic Engineering
- **Royal Melbourne Institute of Technology (1+3)**  
  Bachelor of Engineering (Hons) Advanced Manufacturing and Mechatronics

*Terms and conditions apply

**Career Opportunities:**

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

**SUBJECT LISTING**

**YEAR 1**

- Calculus & Analytical Geometry II
- Engineering Graphic & Design
- Mathematical Method for Engineers I
- Circuit Theory I
- Digital Electronics I
- Analogue Electronic I
- Advanced Circuit Theory & Transmission Lines
- Mechatronic Lab I (Advanced Circuit Theory Lab)
- Mechatronic Lab II (Analogue and Digital Electronic Lab)
- Engineering Statics
- Electrical Power
- Material Science
- Mechanical Lab III (Material Science Lab)

**YEAR 2**

- Mathematical Method for Engineers II
- Computing for Engineers
- Electronic Manufacturing Industry
- Engineering Software & Applications
- Engineering Dynamics
- Manufacturing Processes
- Fluid Mechanics
- Thermodynamics I
- Mechanical Lab IV (Thermo-fluids Lab)
- Electrical Machine
- Mechatronic Lab III (Electrical Machine Lab)
- Cooperative Placement II

**YEAR 3**

- Engineers in Society
- Engineering Management & Economics
- Numerical Analysis
- Digital Electronics II
- Microprocessor Systems
- Mechatronic Lab IV (Digital and Microprocessor Lab)
- Embedded System Design
- Instrumentation & Measurement
- Fluid Power & Drives
- Mechatronic Lab VI (Fluid Power, Drives and Control Lab)
- Control Systems
- Mechatronic Lab V (Control Systems Lab)
- Stress Analysis and Design
- Mechanical Lab V (Stress Analysis and Design Lab)
- Cooperative Placement IV

**YEAR 4**

- Power Electronics
- Robotic Systems
- Mechatronic System Design (Capstone Project)
- Mechatronic Lab VII (Industrial Automation and Practice)
- Final Year Project A
- Final Year Project B

**Elective Courses (Select one course only):**

- Digital Signal Processing
- Intelligent Systems
- Modern Control Systems

*General Courses (MPU) are compulsory for all students. Please refer to page 15.*

*Terms and conditions apply
Bachelor of Engineering (Hons) Civil Engineering

The buildings we frequent, the bridges we cross, the roads we drive on; every structure, surface and support system is grounded in civil engineering. In this programme, students will learn how to design, construct and maintain structures in the ‘built environment’. Students will read a wide range of courses that includes structural analysis, geomatics, and hydraulics, highway and traffic, as well as water and sewerage systems – all of which emphasise engineering and managerial skills at the same time. This will ensure they have the ability to 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.

DID YOU KNOW?

Second Runner Up
LING POH CHOO, WONG YOONG, TEH YU XUAN, TAN KHAI KIM, KENT GAN WAI
Bachelor of Engineering (Hons) Civil Engineering

First Runner Up
Pertandingan Inovasi Perlindungan Cerun 2018.
LING POH CHOO, WONG YOONG SEONG
Bachelor of Engineering (Hons) Civil Engineering

International Degree Pathway*
Deakin University (1.5+2.5)
B Civil Engineering (Hons)
University of Manitoba (up to 2+2)
BSc Civil Engineering
University of Queensland (2+2.5)
Bachelor of Engineering (Hons) Civil Engineering
Royal Melbourne Institute of Technology (1.5+2.5)
Bachelor of Engineering (Hons) Civil and Infrastructure
Griffith University (2+2)
Bachelor of (Hons) Civil Engineering

Subject Listing

<table>
<thead>
<tr>
<th>YEAR</th>
<th>COURSES</th>
</tr>
</thead>
</table>
| 1    | Calculus & Analytical Geometry 2  
Geometrics  
Geometrics Field Work  
Computing for Engineers  
Engineering Graphics & Design  
Mathematical Methods For Engineers 1  
Mathematical Methods For Engineers 2  
Engineering Statics  
Electrical Principles |
| 2    | Fluid Mechanics  
Theory Of Structure  
Civil Lab 1  
Stress Analysis & Design  
Engineering Dynamics  
Mechanical Lab 5  
Materials In Civil Engineering  
Soil Mechanics  
Civil Lab 2  
Numerical Analysis  
Cooperative Placement 2 |
| 3    | Geotechnical Materials & Analysis  
Structural Analysis  
Water And Waste-Water Engineering  
Reinforced Concrete Design 1  
Hydraulics  
Geotechnical Design  
Engineers In Society  
Reinforced Concrete Design 2  
Structural Steel And Timber Design  
Civil Lab 3  
Cooperative Placement 4 |
| 4    | Final Year Project A  
Highway Engineering  
Project Construction & Management  
Contract & Estimation  
Capstone Design Project 1  
Construction Technology  
Final Year Project B  
Environmental Engineering Analysis & Design  
Engineering Hydrology  
Capstone Design Project 2  
Engineering Management & Economics  
Elective Course (Any one course):  
Groundwater Hydrology  
Finite Element Analysis  
Transportation Engineering  
Technopreneurship |

*General Courses (MPU) are compulsory for all students. Please refer to page 15.

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

*Terms and conditions apply
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.

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<tr>
<th>YEAR</th>
<th>SUBJECT LISTING</th>
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<tbody>
<tr>
<td>1</td>
<td>Calculus &amp; Analytical Geometry II</td>
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<tr>
<td></td>
<td>Circuit Theory I</td>
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<tr>
<td></td>
<td>Digital Electronics I</td>
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<td>Analogue Electronic I</td>
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<td>Mathematical Methods for Engineers I</td>
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<td>Technical Communication</td>
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<td>Electromagnetic Theory I</td>
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<td>Electronic Laboratory 1A</td>
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<th>YEAR</th>
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<td>2</td>
<td>Advanced Circuit Theory &amp; TL</td>
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<td>Engineering Design</td>
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<td>Electronic Manufacturing Industry</td>
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<td>Engineering Software &amp; Applications</td>
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<td>Co-operative Placement 2</td>
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<td></td>
<td>Analogue Electronics II</td>
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<td>Digital Electronics II</td>
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<td>Electronic Laboratory 2A</td>
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<td>Electronic Laboratory 2B</td>
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<tr>
<th>YEAR</th>
<th>SUBJECT LISTING</th>
</tr>
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<tbody>
<tr>
<td>3</td>
<td>Communication Circuits</td>
</tr>
<tr>
<td></td>
<td>Electromagnetic Theory II</td>
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<tr>
<td></td>
<td>Communication Theory</td>
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<td></td>
<td>Numerical Analysis</td>
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<td></td>
<td>Data Communication &amp; Networks</td>
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<td></td>
<td>Microprocessor Systems</td>
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<td>Environmental Engineering</td>
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<td>Optical Communication</td>
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<td></td>
<td>Engineering &amp; Management &amp; Economics</td>
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<td>Engineers in Society</td>
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<td>Electronic Laboratory 3A</td>
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<td>Communication Laboratory 3B</td>
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<td></td>
<td>Embedded Systems Design</td>
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<tr>
<th>YEAR</th>
<th>SUBJECT LISTING</th>
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<tbody>
<tr>
<td>4</td>
<td>Communication Systems</td>
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<tr>
<td></td>
<td>Communication Sub-System Design</td>
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<tr>
<td></td>
<td>Microwave System Design</td>
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<td>Antennas &amp; EMC</td>
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<tr>
<td></td>
<td>Digital Signal Processing</td>
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<td></td>
<td>Design Project</td>
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<td></td>
<td>Digital Systems &amp; HDLs</td>
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<tr>
<td></td>
<td>Final Year Project A</td>
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<td>Final Year Project B</td>
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<tr>
<td></td>
<td>Mobile &amp; Satellite Communication</td>
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<tr>
<td></td>
<td>Co-operative Placement 4</td>
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<tr>
<td></td>
<td>Electronic Laboratory 4A</td>
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<td>Communication Laboratory 4B</td>
</tr>
</tbody>
</table>

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.

Recipient
IEM Gold Medal Award 2018

**YAP KAH YUNG**
Bachelor of Engineering (Hons)
Electrical and Electronic Engineering

DID YOU KNOW?

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International Degree Pathway*

**Waterford Institute of Technology (2+2)**
Bachelor of Engineering (Hons) in Electronic Engineering

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

*Terms and conditions apply
Bachelor of Engineering (Hons)  
Electrical and Electronic Engineering

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, PSPICE and LABVIEW which are used to run simulations in projects and research.

DID YOU KNOW?

Ir. Associate Professor Dr Rodney Tan Hean Gay is the recipient of the Mathworks Central Challenge Coin Award, presented in recognition of his contributions to MATLAB – a system used by engineers and scientists worldwide.

International Degree Pathway*

University of Manitoba (up to 2+2)
BSc Electrical Engineering

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

SUBJECT LISTING

YEAR 1
Calculus & Analytical Geometry II  
Circuit Theory I  
Digital Electronics I  
Analogic Electronic I  
Mathematical Methods for Engineers I  
Technical Communication  
Electromagnetic Theory I  
Electronic Laboratory 1A  
Electronic Laboratory 1B

YEAR 2
Advanced Circuit Theory & TL  
Engineering Design  
Mathematical Methods for Engineers II  
Electronic Manufacturing Industry  
Engineering Softwares & Applications  
Electrical Power  
Computing for Engineers  
Co-operative Placement 2  
Analogic Electronics II  
Digital Electronics II  
Electronic Laboratory 2A  
Electronic Laboratory 2B

YEAR 3
Communication Theory  
Numerical Analysis  
Instrumentation & Measurement  
Data Communication & Networks  
Microprocessor Systems  
Electrical Machines  
Environmental Engineering  
Control Systems  
Engineering & Management & Economics  
Engineers in Society  
Embedded Systems Design  
Electronic Laboratory 3A  
Electrical Laboratory 3B  
Electrical Laboratory 3C

YEAR 4
Digital Signal processing  
Digital Systems & HDLs  
Energy Conversion & High Voltage Power Transmission  
Power Electronics  
Design Project  
Final Year Project A  
Power Systems  
Final Year Project B  
Co-operative Placement 4  
Power System Protection  
Electronic Laboratory 4A  
Electrical Laboratory 4B  
Elective:  
Electromagnetic Theory II  
Introduction to Production and manufacturing  
VLSI Design  
Technopreneurship

*Terms and conditions apply

*General Courses (MPU) are compulsory for all students. Please refer to page 75.
Diploma In
Electrical and Electronic Engineering

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.

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

SUBJECT LISTING

YEAR 1
- Engineering Physics 1
- Engineering Mathematics 1
- Computer Applications (Computing Essentials)
- Electrical and Electronic Principles
- Engineering Physics 2
- Circuit Analysis 1
- Engineering Mathematics 2
- Engineering Design
- Digital Electronics

YEAR 2
- Engineering Principles
- Applied Computing (Computing for Engineers)
- Circuit Analysis 2
- Electrical Technology 1
- Electrical Technology 2
- Engineering Mathematics 3
- Telecommunication Principles
- Industrial Studies
- Project A
- Analogue Electronics
- Co-operative Placement 2

YEAR 3
- Control & Instrumentation Systems
- Microprocessor Based Systems
- Project B

*General Courses (MPU) are compulsory for all students. Please refer to page 15.

Some notable projects completed by students from the Diploma in Electrical and Electronic Engineering programme

- Hydroponic Gardening using PVC Pipe
- The Pesticide/Crop Garden Sprayer (PGS)
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.

GEOMATIC AND CONCRETE LAB

This lab is equipped with all the necessary surveying equipment. Students use this equipment for land surveying, and to analyse data collected during assignments. Students can also perform engineering evaluations and experiments to test the qualities of building materials like concrete and other cementitious materials here.

ELECTRICAL AND ELECTRONIC LAB

Equipped with the state-of-the-art of fundamental Electrical and Electronic measurements, this lab allows students to run experiments related to Circuit Analysis, Digital and Analogue Electronics using multimeter, power supply, oscilloscope and function generators.

MATERIAL SCIENCE AND PETROLOGY SOIL MECHANICS LAB

In this lab, students can develop further knowledge of materials structure, properties, performance and its processes by producing, transforming, and analysing materials. Students can also conduct experiments to process, test and determine soil properties here.

THERMO-FLUID LAB

The lab allows students to conduct research in thermodynamics, fluid mechanics, and heat transfer. Students can also study a variety of complex engineering issues, such as electronics cooling, nanofluidics, micro-flow control, and bio-inspired fluid dynamics.
In this lab, students study the courses related to power, machines and drives. This lab allows students to conduct experiments related to power system protection, power electronics, power transmission and distribution with AC machines, DC machines and an electrical transformer.

**INSTRUMENTATION LAB**

This laboratory has state-of-the-art equipment for teaching and research development. It includes an atomic absorption spectroscopy (AAS), Fourier Transform Infrared Spectroscopy (FTIR), UV-VIS spectroscopy with desktop computer, nano zeta sizer, titrator and tensiometer.

**PETROCHEMICAL LAB**

This lab has the necessary equipment for the analysis and characterisation of solid, liquid and gaseous substances which students can use to conduct testing and research in the areas of air and water pollution. The equipment available includes a viscometer bath, flashpoint tester, seta oil test centrifuge, rotary evaporator, colorimeter, jar test, and turbidity meter.

**ADVANCED CHEMICAL LABORATORY**

This laboratory has all the equipment for aspiring chemical engineers to conduct physical and chemical processes (fluid flow, heat and mass transfer). Equipment includes a PC-controlled and data logging system, a gas chromatography with a desktop computer, gas absorption demonstration unit, tubular flow reactor with a desktop computer, refractometer, continuous distillation column, batch reactor and CSTR in series.
# GENERAL COURSES (MPU)

**COMPULSORY FOR ALL STUDENTS**

<table>
<thead>
<tr>
<th>DEGREE PROGRAMMES</th>
<th>DIPLOMA PROGRAMMES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MALAYSIAN STUDENTS</strong></td>
<td><strong>INTERNATIONAL STUDENTS</strong></td>
</tr>
</tbody>
</table>
| • Ethnic Relations  
• Islamic Civilisation and Asian Civilisation | • Malaysian Studies  
• Communication in Bahasa Melayu 3 | • Malaysian Studies | • Communication in Bahasa Melayu 2 |

**ALL STUDENTS**

- • U2 – University Life  
- • U2 – Technical Communication  
- • U3 – Malaysian Experiential Tourism/Malaysian Ethnic Food  
- • U4 – Extra-curricular Learning Experience 1 to 3

**ALL STUDENTS**

- • U2 – Study Skills and Employability  
- • U3 – Malaysian Eco-Tourism/Malaysian Traditional Food  
- • U4 – Extra-curricular Learning Experience 1 to 2

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### SOME OF OUR MANY STUDENT ACHIEVERS

**THI SHIKI**  
Bachelor of Engineering (Hons) Chemical Engineering  
*Tsinghua University*  
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 biomedical applications.

---

**KHAW LIANG FA**  
Bachelor of Engineering (Hons) Chemical Engineering  
*Imperial College London*  
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.

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**GARY POH KWOR XIANG**  
Bachelor of Engineering (Hons) Chemical Engineering  
*Imperial College London*  
Drove cutting-edge research in protein crystallisation using DNA origami. His research aims to form protein crystals which have wide applications in pharmaceutical, biotechnology and biomedical industries.
**ENTRY REQUIREMENTS**

*INTAKES: JANUARY, MAY AND SEPTEMBER*

### DIRECT ENTRY INTO BACHELOR’S DEGREE (ALL ENGINEERING MAJORS EXCEPT CHEMICAL ENGINEERING)

<table>
<thead>
<tr>
<th>QUALIFICATIONS</th>
<th>ACADEMIC REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>STPM</td>
<td>Minimum 2C including Mathematics and Physics</td>
</tr>
<tr>
<td>A-Levels</td>
<td>Minimum 2D including Mathematics and Physics</td>
</tr>
<tr>
<td>UEC</td>
<td>Minimum 5 credits including Mathematics and Physics</td>
</tr>
<tr>
<td>CPU</td>
<td>CPU – Minimum average of 60% in 6 subjects, inclusive of a minimum score of 60% in Mathematics and Physics</td>
</tr>
<tr>
<td>Local Matriculation</td>
<td>Minimum CGPA of 2.0</td>
</tr>
<tr>
<td>Foundation from other University/College</td>
<td>Minimum CGPA of 2.0</td>
</tr>
<tr>
<td>WAEC/NECO</td>
<td>Maximum aggregate of 15 points out of best 5 subjects, inclusive of minimum B's in Mathematics and Physics</td>
</tr>
<tr>
<td>Diploma/Advance Diploma/Degree/ equivalent</td>
<td>Pass subject to school discretion after reviewing transcript and syllabus. Max credit transfer of 30% of the programme total credits</td>
</tr>
<tr>
<td>Other qualifications deemed equivalent to STPM/A-Level by Malaysian Qualifications Agency</td>
<td>Minimum overall average of 60%, inclusive of minimum 60% in Mathematics and Physics</td>
</tr>
<tr>
<td>International Baccalaureate</td>
<td>Minimum 26/42 points from 6 subjects (inclusive Mathematics &amp; Physics/Chemistry)</td>
</tr>
<tr>
<td>SAM</td>
<td>Minimum average of 60% in 5 subjects, inclusive of minimum scores of 60% in Mathematics and Physics</td>
</tr>
</tbody>
</table>

* Chemistry is required for Chemical Engineering; Physics is required for all other programmes.

### DIPLOMA IN ELECTRICAL AND ELECTRONIC ENGINEERING / DIPLOMA IN ENGINEERING (MATERIALS SCIENCE)

<table>
<thead>
<tr>
<th>QUALIFICATIONS</th>
<th>ACADEMIC REQUIREMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPM / O-Levels</td>
<td>Minimum 3 credits inclusive of Mathematics and Science/Technical/Vocational (Pass is required for English)</td>
</tr>
<tr>
<td>UEC</td>
<td>Minimum 3 credits inclusive of Mathematics and Science/Technical/Vocational (Pass is required for English)</td>
</tr>
<tr>
<td>WAEC/NECO</td>
<td>Minimum 3 C's, inclusive of Mathematics and Science</td>
</tr>
<tr>
<td>Other qualifications deemed equivalent to STPM/A-Level by Malaysian Qualifications Agency</td>
<td>* Minimum overall average of 50% (inclusive of Mathematics and Science)</td>
</tr>
<tr>
<td>Other qualifications deemed equivalent to SPM/O-Level by Malaysian Qualifications Agency</td>
<td>* Minimum overall average of 50% (inclusive of Mathematics and Science)</td>
</tr>
<tr>
<td>Certificates from Polytechnics from relevant field</td>
<td>Minimum 50% average</td>
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</tbody>
</table>

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.

*Note: Discretion is given to Dean/Deputy Dean to deal with other borderline Academic Requirements.*

### ENGLISH REQUIREMENTS

**DIPLOMA**

- A distinction (A+, A or A-) in the English Language subject at SPM/UEC level; or MUET Band 2; or a score of 196 (computer-based) / 525 (writing-based) / 69-70 (internet-based) in TOEFL; or Band 5 in IELTS.
- In the event that the English Language Requirements are not met, student may be required to undertake additional English module(s) prior to or concurrently with the undergraduate programme, based on the University’s decision.

**DEGREE**

- A distinction (A+, A or A-) in the English Language subject at SPM/UEC level; or MUET Band 3; or a score of 196 (computer-based) / 525 (writing-based) / 69-70 (internet-based) in TOEFL; or Band 5 in IELTS.
- In the event that the English Language Requirements are not met, student may be required to undertake additional English module(s) prior to or concurrently with the undergraduate programme, based on the University’s decision.

International students holding equivalent academic qualifications but which are not conducted in English, are required to sit for the English Placement Test, which may result in the taking of the English Enrichment Programme (1 to 10 months). Students who intend to pursue the above undergraduate programme directly, are advised to fulfil the above English requirements prior to commencing their studies at the University.

*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.*