



# Faculty of Engineering Undergraduate Programmes

[engine.um.edu.my](http://engine.um.edu.my)

Bachelor of Mechanical Engineering  
Bachelor of Civil Engineering  
Bachelor of Chemical Engineering  
Bachelor of Biomedical Engineering  
Bachelor of Electrical Engineering



We have a reputation as one of Malaysia's finest teaching university, top notch research and well known ground for fresh new talent. We have produced numerous graduates and our alumni has been very successful and have become leaders in engineering.

Faculty of Engineering is home to 1,800 students at UM, a small and closed knitted community of peers. Once you have been professionally admitted into UM, you will join our students together on presentations, competitions, rigorous class work that will provide a solid foundation for your professional career. Our engineering curriculum is built upon a strong foundation of engineering principles and concepts that are industry relevant. We emphasize student learning through hands on design, research and experimental testing experiences.

At the heart of everything we do, is the need to empower our students to think creatively and challenge existing practices. You will interact with Faculty members who will challenge the way you think about the world and support you as you seek opportunities to grow as a leader through teamwork, student conference, co-curricular involvement and professional development.



# Our Programme Emphasis

We have invested extensively in the student experience through our innovative teaching and our laboratory facilities are integrated into an excellent campus-wide suite of facilities and services offered by the Faculty.

To become a professionally accredited engineer, you'll complete a four years undergraduate degree with us. Qualified engineers are in high demand and are well paid. As an engineering graduate, you're assured of a vast range of interesting and well-paid employment opportunities around the world.

We engage with industry as part of developing industry centric graduates and this is clearly evident through our collaboration with five global companies, i.e. Daikin, Ossur, Rohde & Schwarz, Motorola Solutions and Proton under the academic-industry partnership called engineering@UM–Industrial Innovation Centre (eUM-IIC). eUM-IIC allows companies to leverage on our research capabilities and expertise, while empowering our students with first hand and real world experiences.

## Reasons to Study engineering@UM

- Study at one of the world's best Faculty (ranked 59 in the recent QS World University Rankings 2021)
- **ALL our programmes are ranked number ONE in Malaysia**
- All our degree programmes are accredited by the Board of Engineers Malaysia and Washington Accord
- We have industry partners (Daikin, Motorola Solutions, Rohde and Schwarz, Proton and Ossur) with research laboratories at the Faculty for a more engaging student experience
- Student friendly facilities with newly renovated cubes/lecture/ theatres/ canteens/ etc
- Dedicated & experienced professors and staff
- Most of the academic staff are Professional Engineers and/or Chartered Engineers
- Strategic location (in the heart of the city) with easy access through UM rides and public transport
- Our graduates are highly sought after upon graduation by industries and academia
- Opportunity to be part of the world class research programmes in the Faculty

## Our Rankings



# Introducing our Undergraduate Programmes

Thank you for considering our degree offerings. We look forward to you joining us on our journey to bring out the best in you and studying at one of the world's best Faculty of Engineering.

We know for sure that you will have an enriching and rewarding experience that will lead to a lifelong affiliation with our Faculty.

## What's in it for you?

- Degree from one of the top faculties in the world
- Leadership & teamwork
- Holistic graduates through engagement with industry and academia
- Your future career





# More Reasons to Study engineering@UM

## QS Rankings

Number 1 in Malaysia for engineering programmes and we are rated 5 stars for excellence, teaching, internationalization, facilities, inclusiveness, innovation and employability.



## Faculty of Engineering

Ranked 55 in the world in the category of Engineering & Technology



## Best in the World Engineering Curriculum

- Electrical Engineering is ranked 46
- Mechanical Engineering is ranked 51-100
- Chemical Engineering is ranked 51-100
- Civil Engineering is ranked 51-100



# More Reasons to Study engineering@UM



## **Internship as part of the programme**

We require our students to undergo 13 weeks of internship at companies to have a better perspective of theory and practical applications.



## **Accredited Degree Programmes**

Our degree programmes are accredited by Board of Engineers, Malaysia. Malaysia is a signatory to Washington Accord (WA), which means all engineering programmes recognized by Engineering Accreditation Council (EAC) will be recognized as an equivalent entry to practice engineering in all signatory countries under WA including US, Australia, Canada & Japan.



## **Industry Partners**

engineering@UM Industrial Innovation Centre (eUM-IIC) allows companies to leverage on our research capabilities and expertise, while empowering our students with first-hand, real-world and invaluable experiences.



## **Student Exposure**

We give our students exposure in many competitions, conferences, presentations and usage of our high-tech R&D equipment facilities.



## **Employability of our graduates**

We have high employability rates of our graduates as Faculty of Engineering is known in the industry for producing some of the best leaders in engineering.

# More Reasons to Study engineering@UM



## **Experienced and dedicated academics**

We have a team of experienced and dedicated academics. The professors are leading experts in their research with renowned international linkages.



## **Great Diversity**

UM receives more than 3,000 international students from over 85 countries studying at undergraduate and postgraduate levels.



## **Strategic Location**

UM Campus is situated in Kuala Lumpur, the capital city of Malaysia. Studying in UM, one can gain additional advantages from its proximity to the city.



## **Research University Location**

With more than 64 Research Centres and 6 Research Clusters, UM is Malaysia's Premier Research University and one of the leading research universities in Asia.



# More Reasons to Study engineering@UM

## Truly Green Metropolitan Campus

UM is located in the heart of Kuala Lumpur (KL) on 750-acres of land surrounded by greenery and beautiful landscape. Kuala Lumpur (KL) is ranked **34<sup>th</sup> place in the QS Best Student Cities Ranking 2021** and is establishing itself one of South East Asia's leading study destinations.





# Your Path to become a Mechanical Engineer

## Introduction

Mechanical Engineering is a diverse subject and it can be best summed up with a slogan from the Institution of Mechanical Engineers - "Nothing moves without Mechanical Engineers". Whether it is an aircraft, car, train, satellite or an artificial knee replacement, Mechanical Engineers play an important role.

The Bachelor of Mechanical Engineering programme covers disciplines in mechanical equipment and systems, from micro-mechanical machines to massive power generating turbines. This course teaches you how to use science, mathematics and computing to analyse engineering systems combined with the study in design and manufacturing processes to understand how modern industry works. After the degree, the students can choose a career in automotive, energy production, foundry process, mechanical systems and micro-mechanical engineer.

## Programme Offered

Bachelor of Mechanical Engineering

## Admission Requirements

Students need to complete STPM, Matriculation/Foundation, Diploma/Equivalent, A-levels, IB, AUSMAT or other equivalent qualifications recognised by University's Senate.

## Course Duration

Require four (4) years to complete and students are required to undergo internship.



# Your Path to become a Civil Engineer

## Introduction

Bachelor of Civil Engineering programme provides a solid foundation of knowledge so that students can use the basic principles in Civil Engineering practice and problems. The subject involves the design and construction of projects, financing them and managing the construction process. Civil Engineering helps to solve problems, design, build and maintain our living and working spaces.

It involves finding innovative solutions using a mixture of creativity, application of knowledge for the planning, design and execution of infrastructure works to enhance the quality of life. Civil engineers have played a significant role in most of the famous landmarks in the world. With the growing population straining today's infrastructures, civil engineers are required to improve and build the built environment now and into the future.

## Programme Offered

Bachelor of Civil Engineering

## Admission Requirements

Students need to complete STPM, Matriculation/Foundation, Diploma/Equivalent, A-levels, IB, AUSMAT or other equivalent qualifications recognised by University's Senate.

## Course Duration

Require four (4) years to complete and students are required to undergo industrial internship.





# Your Path to become a Chemical Engineer

## Introduction

Chemical engineers design, create and enhance the systems and equipment used in chemical, biological and environmental processes, industrial, etc. to produce a wide gambit of materials such as fuels, food, pharmaceuticals, etc.

The Chemical engineering degree enables you to have an understanding of the study of chemical and physical sciences together with engineering. More importantly, Chemical engineers impact the world in numerous ways from work involving fuels to consumer products to bio-renewable energy to pharmaceutical and health care advances through incorporating the major disciplines of engineering, mathematics and chemistry.

## Programme Offered

Bachelor of Chemical Engineering

## Admission Requirements

Students need to complete STPM, Matriculation/Foundation, Diploma/Equivalent, A-levels, IB, AUSMAT or other equivalent qualifications recognised by University's Senate.

## Course Duration

Require four (4) years to complete and students are required to undergo internship.



# Your Path to become a Biomedical Engineer

## Introduction

Biomedical Engineering is a multidisciplinary programme which aims to provide you with both an understanding of biology and medical theory and with highly specialized technical training in such fields as electrical, physics, material and mechanical engineering. It involves the application of engineering principles and design concepts to solve problems in medicine and biology - a convergence of life sciences with engineering.

Biomedical engineers are key players in the development, design, and continuing refinement of devices such as joint replacement prosthesis, micro sensors, imaging and pattern recognition, as well as advanced instruments for use in such domains as minimally invasive surgery and movement disorders.

## Programme Offered

Bachelor of Biomedical Engineering

## Admission Requirements

Students need to complete STPM, Matriculation/Foundation, Diploma/Equivalent, A-levels, IB, AUSMAT or other equivalent qualifications recognised by University's Senate.

## Course Duration

Require four (4) years to complete and students are required to undergo internship.





# Your Path to become an Electrical Engineer

## Introduction

Electrical engineering generally deals with the study and application of electricity, electronics, and electromagnetism. It covers a wide range of subfields including electronics, digital computers, power engineering, telecommunications, control systems, and signal processing. Electrical engineers give the world modern virtual reality and spanned power distribution networks across vast rural areas in developing countries.

Bachelor of Electrical Engineering exposes students to the theory and applications of electricity, electronics, information and signal processing. The program is designed around a set of core courses that provide a classical electrical engineering foundation, and a number of elective courses that allow students to specialize in areas of interest and emphasis is placed on the application of the engineering knowledge.

## Programme Offered

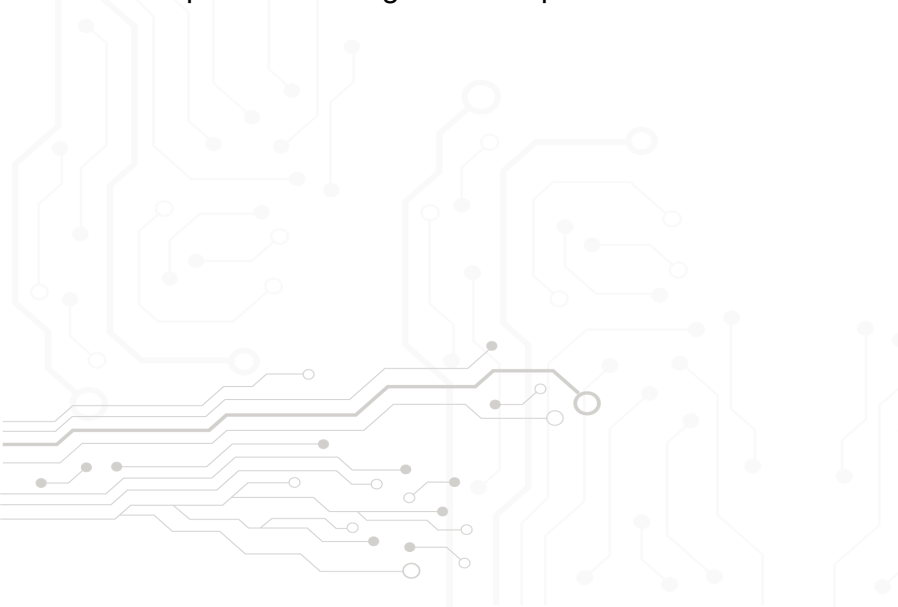
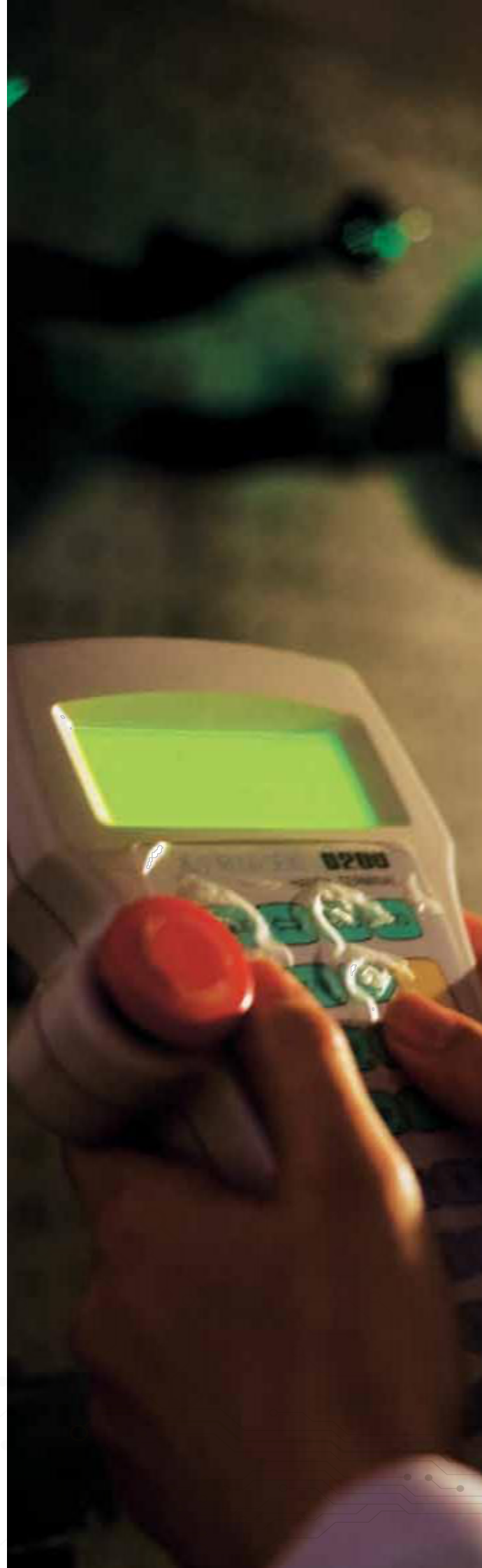
Bachelor of Electrical Engineering

## Admission Requirements

Students need to complete STPM, Matriculation/Foundation, Diploma/Equivalent, A-levels, IB, AUSMAT or other equivalent qualifications recognised by University's Senate.

## Course Duration

Require four (4) years to complete and students are required to undergo internship.



# Admission Requirements

A Malaysian candidate who wishes to pursue a programme of study at the University of Malaya must obtain a pass in SPM/equivalent with credit in Bahasa Melayu/Bahasa Malaysia or a credit in Bahasa Melayu/Bahasa Malaysia July Paper and obtain a pass in Sejarah (SPM 2013 and above) and also required to obtain at least Band 3 in MUET.

PROGRAMME	STPM (CURRENT YEAR)	MATRICULATION/FOUNDATION (CURRENT YEAR)	DIPLOMA/EQUIVALENT	OTHER REQUIREMENTS
<b>Bachelor of Biomedical Engineering</b>	Pass STPM with at least <b>CGPA 3.00</b> and obtained <b>Grade B</b> in <b>Mathematics (T)</b> ; and <b>Physics</b> ;	Pass Government Matriculation /UM Foundation of Science/or Matriculation/Foundation from other institutions that is recognised by the Government and University Senate and obtain CGPA of at least <b>3.00</b> and <b>Grade B</b> in <b>Mathematics</b> ; <b>Physics</b> ;	<b>Requirement 1</b> Obtained Diploma that is recognised by the Malaysian Government and approved by the University Senate. The applicant's must have a Diploma in the same field related to the engineering programme applied with <b>CGPA</b> of at least <b>3.30</b> ;	<b>Requirement 1</b> Passed the <b>GCE A-Level</b> with at least <b>Grade B</b> in <b>Mathematics</b> ; and <b>Physics</b> ;
<b>Bachelor of Chemical Engineering</b>	and Obtained at least <b>Grade B</b> in any of the following one (1) subjects: <b>Biology</b> ; <b>Chemistry</b> ; <b>Information and Communication Technology (ICT)</b>	<b>Physics</b> ; <b>Engineering</b> ; <b>Biology</b> ; <b>Chemistry</b> ; <b>Engineering</b> ; <b>Computer Science/ Computing</b>	and Obtained at least <b>Band 3</b> in MUET	and Obtained at least <b>Grade B</b> at the A-Level in one (1) of the following subjects: • <b>Further Mathematics</b> ; • <b>Chemistry</b> ; • <b>Biology</b>
<b>Bachelor of Civil Engineering</b>	and Obtained at least <b>Band 3</b> in MUET	and Obtained at least <b>Band 3</b> in MUET	and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner	and Obtained at least <b>Band 3</b> in MUET
<b>Bachelor of Electrical Engineering</b>	and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner	and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner	and Obtained at least <b>Grade B</b> in any one (1) of the following subjects: • <b>Biology</b> ; • <b>Chemistry</b> ; • <b>Information and Communication Technology (ICT)</b>	and However, applicants who not have MUET but have the following results may be considered for conditional offer by fulfilling the MUET requirements within the duration of one (1) academic session: • Obtained at least <b>Band 5.5 in IELTS (Academic)</b> ; • Obtained score of <b>at least 550 points (PBT) / 213 points (CBT) / 80 points (IBT) in TOEFL</b>
<b>Bachelor of Mechanical Engineering</b>			or <b>Requirement 2</b> Pass STPM not in current year with at least <b>CGPA 3.00</b> and <b>Grade B</b> in <b>Mathematics (T)</b> ; and <b>Physics</b>	and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner
			and Obtained at least <b>Grade B</b> in any one (1) of the following subjects: • <b>Biology</b> ; • <b>Chemistry</b> ; • <b>Information and Communication Technology (ICT)</b>	or <b>Requirement 2</b> Possess the International Baccalaureate Diploma (IB) with at least <b>30 Point Score</b> and obtained <b>Grade 4 (Higher Level)</b> in <b>Mathematics</b> ; and <b>Physics</b> ;
			and Obtained at least <b>Band 3</b> in MUET	and Obtained at least <b>Grade 4 (Higher Level)</b> in International Baccalaureate (IB) Diploma in one (1) of the following subjects: • <b>Further Mathematics</b> ; • <b>Chemistry</b> ; • <b>Biology</b>
			and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner	and Obtained at least <b>Band 3</b> in MUET
			or <b>Requirement 3</b> Pass Government Matriculation /UM Foundation of Science/ or Matriculation/ Foundation from other institutions not the current year recognised by the Government and University Senate and obtain at least <b>CGPA 3.00</b>	and However, applicants who not have MUET but have the following results may be considered for conditional offer by fulfilling the MUET requirements within the duration of one (1) academic session: • Obtained at least <b>Band 5.5 in IELTS (Academic)</b> ; • Obtained score of <b>at least 550 points (PBT) / 213 points (CBT) / 80 points (IBT) in TOEFL</b>
			and Obtained at least <b>Grade B</b> in any two (2) of the following subjects: • <b>Mathematics</b> ; and • <b>Physics/Engineering Physics</b>	and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner
			and Obtained at least <b>Grade B</b> in any one (1) of the following subjects: • <b>Biology</b> ; • <b>Chemistry/Engineering Chemistry</b> ; • <b>Computer Science/Computing</b>	or <b>Requirement 3</b> Possess the <b>Australian Matriculation Programme (AUSMAT)</b> with a minimum Australian Tertiary Admission Rank (ATAR) of <b>70 percent</b> and a minimum score of <b>16 points (High Achievement)</b> in <b>Mathematics</b> ; and <b>Physics</b> ;
			and Obtained at least <b>Level 3 (Band 3)</b> in MUET	and Obtained <b>16 points (High Achievement)</b> in one (1) of the following subjects: • <b>Chemistry</b> ; • <b>Biology</b> ; • <b>Mathematics Specialist</b>
			and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner	and Obtained at least <b>Band 3</b> in MUET
				However, applicants who not have MUET but have the following results may be considered for conditional offer by fulfilling the MUET requirements within the duration of one (1) academic session: • Obtained at least <b>Band 5.5 in IELTS (Academic)</b> ; • Obtained score of <b>at least 550 points (PBT) / 213 points (CBT) / 80 points (IBT) in TOEFL</b>
				and Candidates who apply for Bachelor of Electrical Engineering and Bachelor of Chemical Engineering must not be colour blind except with a certificate from a Registered Medical Practitioner





# What Our Students Say?



**Teah Ee Lin**

*Bachelor of Civil Engineering From: Malaysia*

To study in UM provides chances to be exposed to highly independent and self-motivating academic environments, not forgetting the soft skills to be polished through events, clubs and societies organized by students themselves. The great thing to be shared is the cultural diversity learning atmosphere with peers from different races, as well as peers from other countries. I notice a huge improve in personality after 3 years getting around in UM, joining several events, clubs and societies, at which, each of them imposed a significant impact to equip us with skills, both in intellectual performance and soft skills presentation, to be ready for future industry. Department of Civil Engineering is actively engaged in R&D works with supports from the University, Government, and other industrial grants. Throughout the 4-year course, we are imparted with solid knowledge of engineering fundamentals, principle, and applications, besides instilled with a sense of accountability and responsibility to the environment and society with respect to professional ethics, social conduct and the environment. The course too equips us with the ability to apply critical thinking to identify, formulate and solve civil engineering related problems. I am confident with the course structure of Civil Engineering degree in UM, believing to have extra mileage in terms of job prospects.



**Rabiatul Adawiyah Ridwan**

*Bachelor of Chemical Engineering From: Malaysia*

I have been studying in UM for almost 5 years, starting from Foundation Studies and continued with a Bachelor in Chemical Engineering. In my opinion, UM-ecocampus provides a conducive environment and ample facilities for their students and staffs. The academic programs, especially for engineering department are exceptional which exposed me to various knowledge, challenges as well as provided me with the right skills before stepping into the real industry. In the Chemical Engineering course, students are not only learning about the engineering fundamental, but have the opportunity to explore a wider range of elective programs. Various curricular activities including the laboratory work, internship program, research and design project enable us to enhance our soft skills, build good teamwork and increase the self-confidence. UM lecturers and staffs are very helpful and provide necessary supports to students. I also gained a lot of memorable experiences, meet many new friends and increase leadership skills by actively involved in student associated clubs and college projects. I would highly recommend UM as one of the best and high-quality education platform for students from all over the world.



**Tan Siew Ching**

*Bachelor of Biomedical Engineering From: Malaysia*

I choose to further my bachelor's degree in biomedical engineering at UM due to its world ranking and well recognition which will help me in finding job after I graduated. I have a great time in UM where I have been exposed to friends from different background that have their own expertise and great personalities, lecturers and staff which are well experienced and helpful. Throughout my studies in UM, it helps to prepare myself to be more all-rounded, equip myself with all the soft skills and knowledge that I will need in my career and also learn to handle different types of challenges in life. UM is definitely my first choice!



# What Our Students Say?



**Shee Loke Yang**  
*Bachelor of Chemical Engineering From:*  
Malaysia

Engineering Society or in National Language, Persatuan Kejuruteraan Universiti Malaya (PKUM) was established the earliest (1958) and the largest (700 members) society in the Faculty of Engineering at the University of Malaya. To me, PKUM is not just any ordinary engineering society. It is a place where leadership skills are being developed. Valuable skillsets such as project management, human resource management and strategic management are honed extensively through PKUM's many events including EDMAT and The Engineering Festival (TEF) to enhance the efficiency and capability of engineering students. PKUM also enabled me to meet and connect with many of its successful alumni, who are currently working on projects all over the globe, providing me with helpful ideas and advices for my future engineering career. From being a junior executive, then a director and now a president, I am grateful to have the opportunity to step out of my comfort zone and learn through various leadership positions. It is definitely not easy managing an important and impactful organization like PKUM but I have certainly grown to be a leader and team player that does not mind contributing blood, sweat and tears. Thanks to PKUM, it also had given me the opportunity to complete my first two internships in China and my recent internship in Malaysia in an Oil & Gas Company.



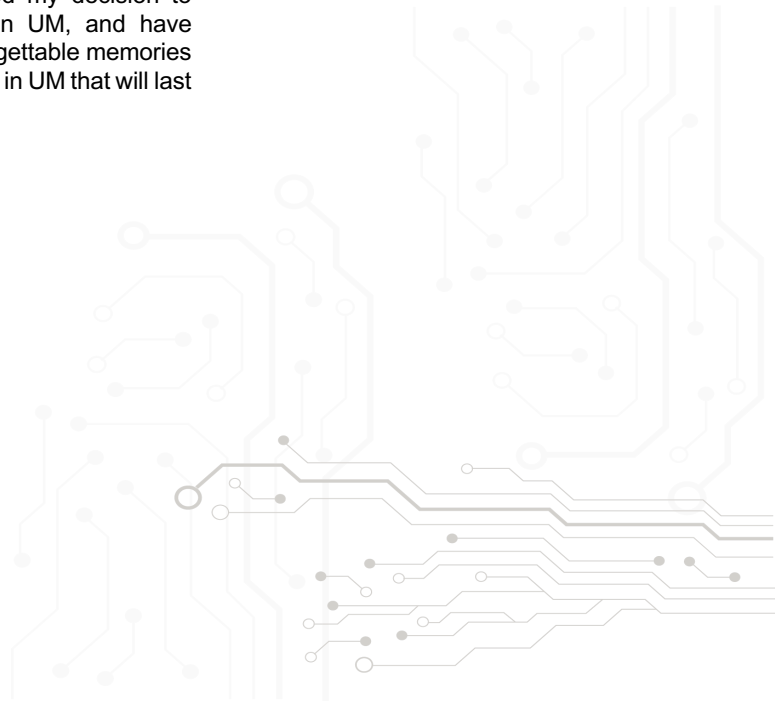
**Cheah Heng Yao**  
*Bachelor of Chemical Engineering From:*  
Malaysia

As the quote "Res Ipsa Loquitur" says, the fact will speak for itself. UM has proven itself to be one of the best universities with its highly acclaimed degrees that included a few top ranked degrees such as electrical engineering which was ranked 46th in the world currently (2020). Furthermore, UM has also created a friendly study environment that provided not only academic growth but also room for personal growth for undergraduate students with its ever increasing variety of activities for students to join and organize in. Such activities such as "Pesta Tanglung University Malaya", "Sukmum" and so on have also created a chance for multiple ethnics to mix and mingle in. In conclusion, I can truly say that I never regretted my decision to further my studies in UM, and have created tons of unforgettable memories during my student life in UM that will last a lifetime.



**Gillvest Anak Mathew**  
*Bachelor of Chemical Engineering From:*  
Malaysia

When people say UM is the best, they definitely did not lie. Throughout my 3 years of journey here thus far, there's never a dull moment. Each day presents a new challenge and open up many doors for one to soar higher, reaching new heights of success and accomplishment. In my personal experience, I have never been denied to join anything that I've wanted - be it sports management, orientation facilitator or even theatre production, just to name a few. Everyone here is presented an equal opportunity for personal and career growth, in addition to the top quality of education and support that UM has to offer.



# Industry Feedback on our Undergraduate Programmes



**Alah Seah**  
Managing Director  
Rohde & Schwarz Malaysia Sdn Bhd

*"With strong links to the industry, the engineering programmes are technically relevant. The programmes strives to impart strong engineering know how and valuable skill sets that is a requisite to the knowledge workforce of tomorrow."*



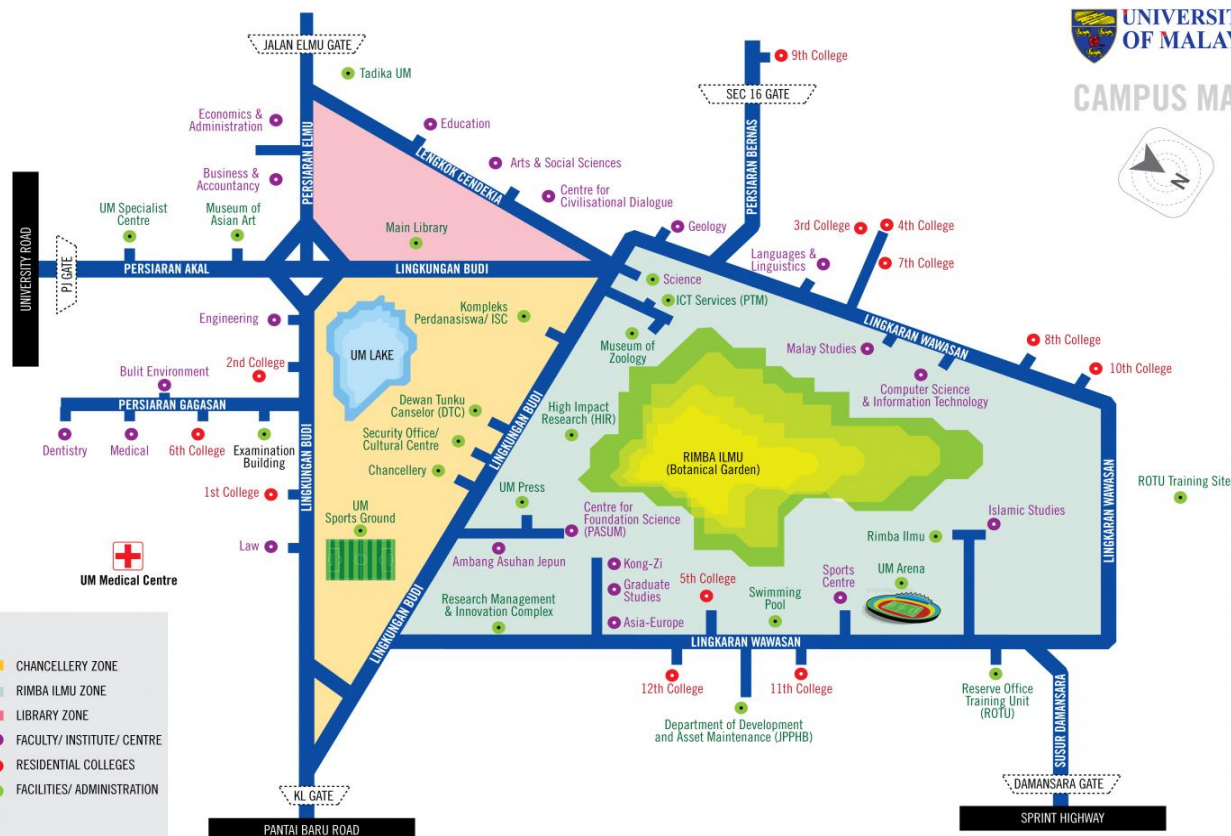
**Abdul Rashid Musa**  
Chief Executive Officer  
Proton Edar Sdn Bhd

*"The programmes offered at the Faculty of Engineering, UM equips graduates with superior and comprehensive knowledge that enable them to enhance their key competencies which are vital for effective management and leadership to meet challenging business environment. It is an impressive programme for graduates who wish to become future business leaders."*



**Azmi Ujang**  
Chief Human Capital Officer  
Celcom Axiata Berhad

*"The Faculty of Engineering, University of Malaya, with the leadership of Professor Ir. Dr. Noor Azuan Abu Osman, is a highly innovative faculty. The adoption of "Out of the box" thinking in their approach to provide a platform to nurture new talent to meet the industry standards and national aspirations through forging an academia-industry collaboration is commendable. Such collaboration is ideal for undergraduates to test their abilities on genuine business challenges and to be exposed to real work responsibilities. Hence equipping the undergraduates with living skills, entrepreneurship and employment ready attributes. On behalf of Celcom Axiata, we are proud to be part of this collaboration in which mutual benefits for all parties involved, were achieved."*



Lets us bring out the best in you, here at *engineering@um*  
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