



### 2023

# FACULTY OF ENGINEERING AND TECHNOLOGY

UNDERGRADUATE PROGRAMMES

TUNKU ABDUL RAHMAN UNIVERSITY OF MANAGEMENT AND TECHNOLOGY DU058(W) Wholly owned by the TARC Education Foundation (Reg. No.: 201301003979 (1033820-M)) The Faculty of Engineering and Technology (FOET) began as the School of Technology of Tunku Abdul Rahman College in 1972 with programmes that simultaneously prepared students to sit for internationally recognised professional examinations. With the upgrading of Tunku Abdul Rahman College to Tunku Abdul Rahman University College, the Faculty of Engineering and Built Environment was set up in 2013 offering both Bachelor and Diploma programmes. Due to rapid growth and academic restructuring, it was decided to split the Faculty in 2017 and the Faculty of Engineering and Technology was set up to focus on the existing range of professionally and internationally recognised Bachelor of Engineering programmes accredited by the Engineering Accreditation Council, Board of Engineers Malaysia.



With over 50 years of experience in engineering education, the Faculty of Engineering and Technology is poised to grow from strength to strength, offering programmes that meet the quality standards of the engineering profession. We invite you to join us in the pursuit of academic excellence leading to great opportunities in your future. We are confident that you will find your time with us both enjoyable and rewarding. Our aim is to ENGINEER YOUR PATHWAY TO SUCCESS, equipping you with knowledge, skills and attributes to prepare you for a brighter future.

## What Our Graduates Say



I am currently employed as an IC design engineer and I am grateful to TAR UMT's well rounded education that has given me the opportunity to pursue my ambitions. TAR UMT is a tertiary education institution that offers quality education that is affordable. The lecturers are knowledgeable and helpful and the campus facilities are top - notch which help students to have a fulfilling campus life. The programme curriculum is designed to strengthen students' technical skills as well as soft skills in addition to helping students build important competencies for future employment. This helps us boost our employability especially in this challenging and fast - paced world.

Bachelor of Electrical and Electronics Engineering with Honours - Graduated in 2022 Diploma in Technology (Electronic Engineering) - Graduated in 2019

- 1. President's List, 2019,2021,2022
- 2. Dean's List, 2021
- 3. Second runner-up in Prodex 2021
- 4. Second runner-up in Prodex 2022



**LEE JIA HAN** 

It has been a wholesome experience to further my studies at TAR UMT. My lecturers are always amiable and helpful, and their encouragement and the way they conduct lessons have helped me a lot in my learning process. I would like to express my appreciation to TAR UMT for providing me the TAR UMT merit scholarship and opportunities to participate in competitions. The achievements I have accomplished during my years in TAR UMT are excellent reminders that I have a lot of potentials to soar higher in my career and life. This ties in very well with my belief in "Selfconfidence is the great determiner of success", because I am the only one who is going to lead myself on my path. Cheers!

Bachelor of Mechanical Engineering with Honours – Graduated in 2022 Foundation in Science – Graduated in 2018

- 1. Merit Scholarship Holder, 2018 & 2022
- 2. Champion of ProDEX 2022 under category Group A (Simulation & Modelling)
- 3. GREATECH Best FYP Award 2022
- 4. President Lists: 202201, 202105, 202005, 201905, 201809
- 5. Dean Lists: 202101, 201909, 201805



FONG HAO NAN

Studying engineering in TAR UMT is a great way to carve a good future in the field of engineering as there is no question of the quality of the programme as well as providing students with an ideal environment to learn and grow. Quality education at TAR UMT also includes helping students develop important practical skills through various means such as encouraging students' participation in various competitions. I also appreciate the faculty's emphasis in robotics which has helped me further deepen my passion for engineering.

Bachelor of Mechatronics Engineering with Honours - Graduated in 2022 Diploma in Technology (Mechatronics) - Graduated in 2019

- 1. Book Prize Winner, 2019
- 2. Merit Scholarship Holder, 2019 & 2022
- 3. GREATECH Best FYP Award 2022

Strong industrial links and exposure with engineering site visits, guest lectures, and curriculum design with input from industry advisors and successful alumni.

Graduates are highly sought after by engineering firms and students may take advantage of career fairs and onsite interviews to **secure** employment upon graduation.

Opportunities to participate in **national** and international competitions that challenges the application of in depth engineering knowledge,

practical skills, teamwork and leadership skills.

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Malaysia and **globally** recognised through Malaysia's signatory membership with the Washington Accord. Why study at the

Professionally

accredited

engineering

programmes by the **Board** of Engineers

Engineering education excellence with a strong emphasis on innovative teaching and student centric learning experience.

Passionate and highly qualified academic staff

**FACULTY OF** 

**ENGINEERING** 

AND

**TECHNOLOGY** 

the significance and key values of research in line with industry driven technological growth.

dedicated to inculcate

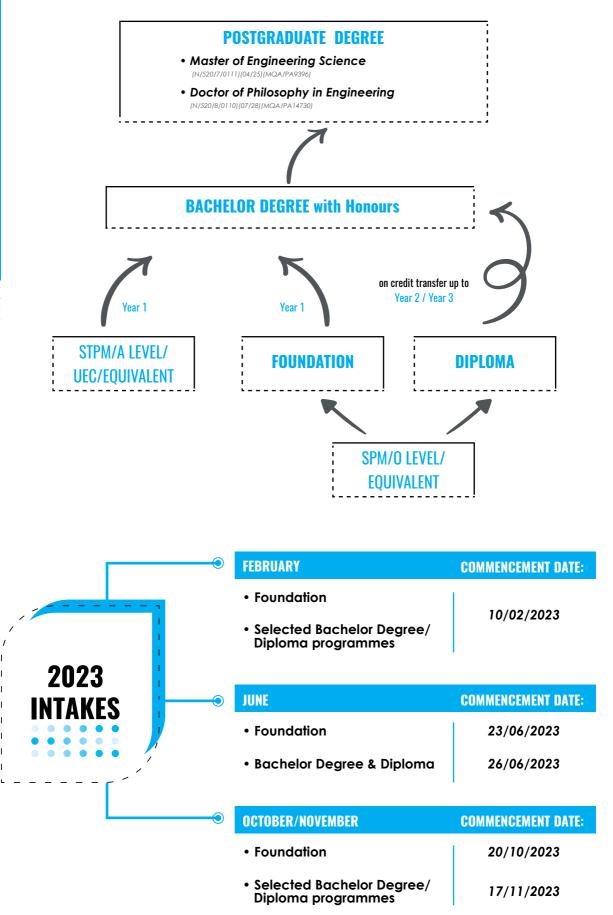
Work on real world industryfunded

- projects
- and receive

### mentorship

from experienced academic staff and practising engineers.



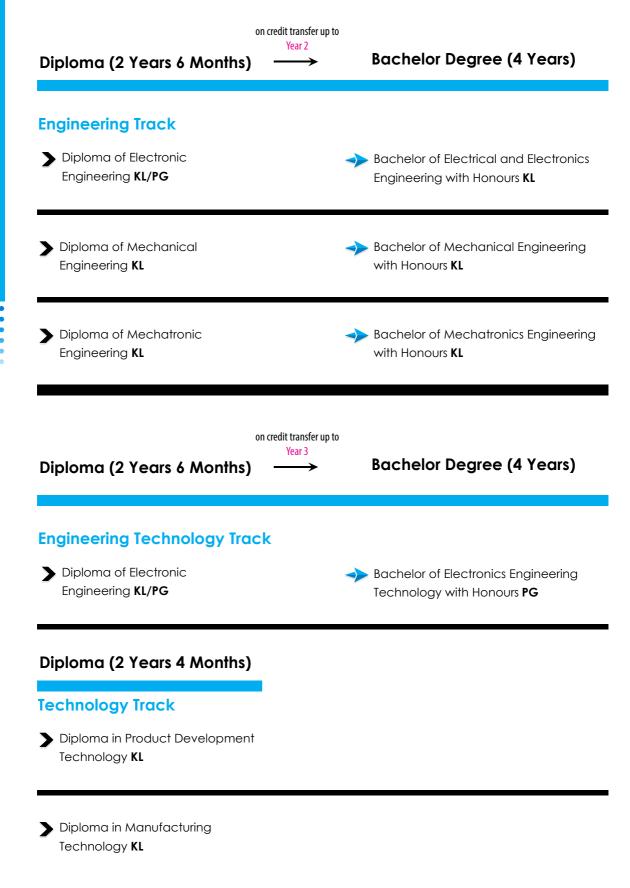


Foundation (1 Year)	→ Bachelor Degree (4 Years)
Foundation in Science (Track A) KL	Bachelor of Electrical and Electronics Engineering with Honours KL
	Bachelor of Mechanical Engineering with Honours KL
	Bachelor of Mechatronics Engineering with Honours KL
	Bachelor of Electronics Engineering Technology with Honours PG



**PROGRAMMES OFFERED** 

# **PROGRAMMES OFFERED**



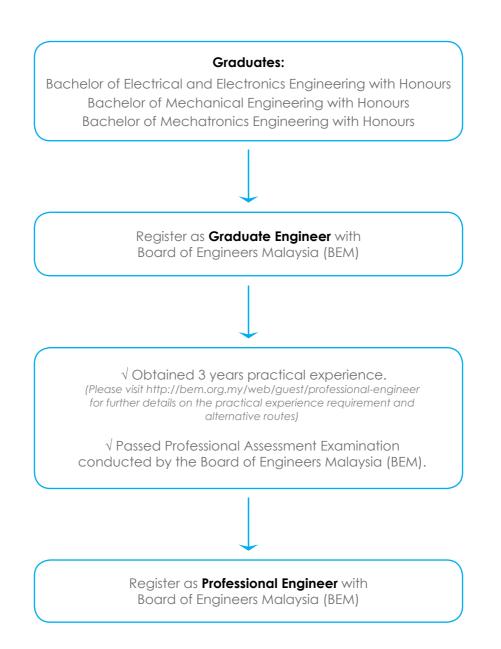
# ACCREDITATION FROM ENGINEERING **ACCREDITATION COUNCIL, BOARD OF ENGINEERS** ACCREDITATIO

Bachelor's Degree programmes (Bachelor of Electrical and Electronics Engineering with Honours, Bachelor of Mechanical Engineering with Honours and Bachelor of Mechatronics Engineering with Honours) have received accreditation from Engineering Accreditation Council, Board of Engineers Malaysia (BEM) since 2016.

**MALAYSIA (BEM)** 

An accredited Bachelor's Degree enable graduates to be eligible for the registration as Graduate Engineer (Grad.Eng.) and followed by Professional Engineer (Ir/ P.Eng) with Board of Engineers Malaysia (BEM).

The Bachelor Degree programmes has been accorded a 6 - year accreditation for graduates of Year 2022 - 2027.



# MECHANICAL ENGINEERING

Mechanical engineering is the broadest among all engineering disciplines. Thus, most of the modern day inventions are due to knowledge and application of mechanical engineering. Ranging from simple machineries to supersonic jets and self-driving vehicles, mechanical engineers were always involved from the inception of an idea to the creation of market-ready product. Graduates trained under mechanical engineering will be equipped with the know-hows and skills to work in a wide spectrum of industries such as manufacturing, automotive, modern agriculture, bio-medical, building services and product design. They are well prepared to contribute to the modern world, fulfilling the needs of the Fourth Industrial Revolution (IR 4.0).

### Career Prospects

Graduates with bachelor degree would find career opportunities as an engineer in various sectors, but not limited to mechanical, manufacturing, process and production, design and development, consultancy and also research and development (R&D). Employment opportunities as equipment or facilities engineer are on the rise nowadays, alongside quality assurance sector.

Graduates with diploma qualification are competent in working as assistant engineers or technicians in the above-mentioned fields and also in relevant sales or marketing sectors.

### Level & Campus

Bachelor of Mechanical Engineering with Honours - 4 years

• KL (R/521/6/0063)(10/25)(MQA/FA3884)

Diploma of Mechanical Engineering - 2 years 6 months

• KL (R2/521/4/0061)(08/28)(AA0045)



# **MECHATRONICS ENGINEERING**

Mechatronics is a multidisciplinary engineering branch incorporating Mechanical, Electronics, Control, Networking and Software systems. The synergy of these systems are widely used in multiple industries which typically include automation and system integration. Graduates are therefore involved in almost all levels of various sectors, namely: design, development, applications, automation, manufacturing and advanced research.

#### Career Prospects

Encompassing mechanical, electronics and control aspects, graduates who were trained under mechatronics engineering would find job opportunities in automation, robotics, instrumentation & control and systems engineering sectors. Having a solid fundamental knowledge, graduates are also able to venture into design, research and development, engineering services, autonomous system engineering and/or jobs that are in-line with the Fourth Industrial Revolution (IR 4.0).

Esteemed diploma level graduates are eligible to contribute as assistant engineers or technicians in the above-mentioned fields and also in relevant sales or marketing sectors.

### Level & Campus

Bachelor of Mechatronics Engineering with Honours

- 4 years
- KL (R/523/6/0159)(10/25)(MQA/FA3885)

Diploma of Mechatronic Engineering - 2 years 6 months

• KL (R/523/4/0139)(08/23)(AA0047)



**PROGRAMMES** 

# **ELECTRICAL AND ELECTRONICS ENGINEERING**

Electrical and Electronics (E&E) Engineering is probably the most useful degree for you to gain insight on how all the bizarre technologies improves our life - from smart wearable, smart appliances to smart power grid, smart transportation and many more. The advanced technologies that we are enjoying right now as well as that to be enjoyed in the future are driven the brightest E&E engineers and scientists with strong fundamental knowledge in electricity, electronics and electromagnetism. E&E Engineering programme enables you to explore technical knowledge in variety broad areas - power and high voltage engineering, signal processing, integrated circuits, communications, control & instrumentations, renewable energy, computer architecture and data engineering - and become a competent engineer well equipped to meet the challenges of Fourth Industrial Revolution (IR 4.0). Emphasis of the programme is on sustainable design, development and commercialization of a wide range of electrical & electr

#### Career Prospects

Graduates will find career opportunities in a wide range of sectors, including aerospace, communications, instrumentation & control, IT & computing, consumer & industrial electronics/ microelectronics, electrical & power generation machinery & equipment, manufacturing, transport networks, power generation, transmission & distribution, public utilities, building services, scientific, medical and educational institutions, amongst others.

Job scopes may include developing solutions to problems using new or existing technologies, product design, research & development, test & verification, inspection and maintenance, marketing, sales & service, management/supervision of engineering projects & operations, systems installation & testing, ensuring projects meet electrical safety regulations and consultancy, amongst others.

### Level & Campus

Bachelor of Electrical and Electronics Engineering with Honours - 4 years

• KL (R/523/6/0158)(10/25)(MQA/FA3882)



# **ELECTRONICS ENGINEERING TECHNOLOGY**

Electronics Engineering is one of the largest and fastest growing industries, especially in Penang – Malaysia's electronics manufacturing hub. This programme deals with the design, application, installation, manufacturing, operation or maintenance of electronics systems. Unlike conventional electronics engineering programme which emphasises on general theories and conceptual designs, the Bachelor of Electronics Engineering Technology with Honours programme covers a specialised discipline in application of electronic engineering, design and implementation, with a broad knowledge of curriculum in the area of industrial robotic, very-large-scale integration (VLSI) design system, microwave communication system, digital signal processing, microelectronics and etc.

Students are also given work placement opportunities with the industry partners includes Plexus Manufacturing Sdn Bhd, Jabil Circuit Sdn Bhd, ViTrox Corporation Berhad, UWC Berhad, VeecoTech Web & Ecommerce Sdn Bhd and Community Marketplace Technology Sdn Bhd throughout their studies, particularly during their semester breaks and internship. This programme produces highly sought-after talents for the industry as students will go through an enriching learning experience that is industrial-relevant.

### Career Prospects

Graduates will find career opportunities that covers a broad spectrum in engineering field, including product development & manufacturing, aerospace, communications, instrumentation & control, IT & computing, consumer & industrial electronics, microelectronics etc.

### Level & Campus

Bachelor of Electronics Engineering Technology with Honours - 4 years

• PG (N/0713/6/0002)(05/29)(MQA/PA15254)



# **ELECTRONIC ENGINEERING**

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Electronic technologies form the foundation of modern society, making possible the devices and systems that we rely upon in our daily life such as mobile communications, computer networks, medical equipment, video and audio systems and industrial control and automation. Electronics is a broad engineering field, giving students enormous flexibility and wide ranging career options. The Diploma of Electronic Engineering emphasises on design of digital and analogue systems with a focus on applying basic concepts and skills to real world situations and developing broad-based knowledge with a curriculum that includes electronic devices, communications, automation and control, software engineering and embedded systems. The Diploma programme is designed to bridge the gap for school leavers for a successful university study in Electrical and Electronics Engineering.

#### Career Prospects

Graduates will find flexible and wide ranging of career options in the industries of aerospace, telecommunications, instrumentation & control, computing, consumer and industrial electronics with job scopes that may include product design, development & testing, maintenance, marketing, and sales & services.

#### Level & Campus

Diploma of Electronic Engineering - 2 years 6 months

- KL (R2/523/4/0138)(08/28)(AA0044)
- PG (R2/523/4/0126) (05/28) (AA0150)



# PRODUCT DEVELOPMENT TECHNOLOGY

Product Development is the process of conceptualising and designing products, either physical or digital, to provide end users with solutions that meet their needs. For the purpose of developing new products or improving an existing products, it is imperative that product development technologists identify company goals in conjunction with market opportunities, prior to applying well-defined principles and technologies in a creative way. Product development technologists also formulate manufacturing specifications and perform design analyses to ensure all products meet industry standards and guidelines for functionality. Graduates trained under product development technology programme are expected to be innovative, creative, and analytical with excellent working knowledge using 3D modelling software and other modern technology tools.

### Career Prospects

Graduates of Diploma in Product Development Technology are Manufacturing and Industrial Technologists with broad technical, managerial and operational background within their profession. Graduates can build their career as an assistant engineer, technical associate, or technician in the field of product research and development, product design and marketing, product testing and quality assurance, product manufacturing and production, mechanical and machineries design, as well as automation and control. They are well prepared as a technoprenuer to fulfil the country's needs of the Fourth Industrial Revolution (IR 4.0). Graduates are also encouraged to further their study in the relevant Bachelor Degree Programme.

### Level & Campus

Diploma in Product Development Technology - 2 years 4 months

• KL (N/521/4/0185)(04/26)(PA13347)

# **MANUFACTURING TECHNOLOGY**

Manufacturing technology encompasses software-based systems, material forming equipment and processes, material removal tools and processes, tooling systems, automated systems and additive processes etc. It refers to any technology that shapes or influences the manufacturing processes. Manufacturing processes are defined as all the activities involved in translating raw materials into finished products through the use of labour, machinery, chemicals, formulation methods, or biological processes. This diploma aims to produce graduates with a sound foundation in manufacturing technology field. Graduates are equipped with the knowledge which are essential for their future employment.

### Career Prospects

Diploma graduates may be employed in a wide variety of manufacturing industries such as iron & steels, petrochemicals, electronics, ceramics, polymers, composites, automotive and aerospace industries as assistant engineers, metallurgical technician, quality control technician, service technician, testing technician, production technician, sales & marketing executive. Diploma graduates also can pursue further study in the relevant Bachelor of Technology programme.

### Level & Campus

Diploma in Manufacturing Technology - 2 years 4 months

• KL (N/0720/4/0001)(05/27)(MQA/PA14872)

# BACHELOR DEGREE ENTRY REQUIREMENTS

Bachelor of Electrical and Electronics Engineering with Honours Bachelor of Mechanical Engineering with Honours Bachelor of	STPM Grade C in Physics and Mathematics T/Further Mathematics	A Level Grade D in Physics and Mathematics	UEC 5 Grade B in the relevant subjects which must include Physics and Advanced Mathematics (I or II)	Other IHL Relevant Foundation/ Diploma accredited by MQA	<ul> <li>Foundation in Engineering</li> <li>OR</li> <li>Relevant Diploma</li> </ul>
Mechatronics Engineering with Honours	SPM				
Bachelor of Electronics Engineering Technology with Honours	STPM Grade C in Physics and one Mathematics subject	A Level Grade D in Physics and Mathematics	UEC 5 Grade B in the relevant subjects which must include Physics and one Mathematics subject	Other IHL Relevant Foundation/ Diploma accredited by MQA	<ul> <li>Foundation in Engineering</li> <li>OR</li> <li>Relevant Diploma</li> </ul>
	AND SPM Pass/O Level Grade E (Pass)/UEC Grade C in English Language				

Note:

a) Students without a credit in SPM Bahasa Melayu are required to pass Bahasa Kebangsaan A before the award of Bachelor Degree.

b) TAR UMT/TAR UC Diploma will be accepted on credit transfer into Bachelor Degree programmes.

c) Equivalent qualifications/qualifications from other Institution of Higher Learning (IHL) will be considered on a case-by-case basis.

d) Subject to the Ministry of Higher Education latest requirements.



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# DIPLOMA **ENTRY REQUIREMENTS**

Diploma of	SPM	O Level	UEC	Certificate
Electronic Engineering Diploma of Mechanical Engineering	3 Credits in the relevant subjects	3 Grade C in the relevant subjects	3 Grade B in the relevant subjects	<ul> <li>Relevant Certificate accredited by MQA</li> </ul>
Diploma of Mechatronic	Diploma of			
Mechaironic Engineering	<ul> <li>(i) SPM Credit/O L B in one mathe</li> <li>(ii) SPM Credit/O L Chemistry or or</li> <li>(iii) SPM Pass/O Lev Language</li> </ul>	<ul> <li>Relevant Skilled/ Technical/ Vocational Certificate accredited by MQA or recognised by the Malaysian Government</li> </ul>		
Diploma	SPM	O Level	UEC	Certificate
in Product Development Technology	3 Credits in the relevant subjects	3 Grade C in the relevant subjects	3 Grade B in the relevant subjects	<ul> <li>Relevant</li> <li>Certificate</li> <li>accredited by</li> </ul>
Diploma in Manufacturing		MQA		
Technology	Compulsory subject	OR		
	<ul> <li>(i) SPM Credit/O L B in one mathe</li> <li>(ii) SPM Credit/O L relevant science</li> <li>(iii) SPM Pass/O Lev Language</li> </ul>	<ul> <li>Relevant Skilled/ Technical/ Vocational Certificate accredited by MQA or recognised by the Malaysian Government</li> </ul>		

Note:

a) SPM holders must have at least a pass in Bahasa Melayu <u>and</u> SPM holders from Year 2013 onwards must have at least a pass in Sejarah.
b) Students without a credit in SPM Bahasa Melayu are required to pass Bahasa Kebangsaan A before the award of Diploma.
c) Equivalent qualifications/qualifications from other Institution of Higher Learning (IHL) will be considered on a

case-by-case basis. d) Subject to the Ministry of Higher Education latest requirements.



**MINIMUM ENTRY REQUIREMENTS** 

## **FOUNDATION ENTRY REQUIREMENTS**

	FOUNDATION	ENTRY REQUIREMENTS			
BACHELOR DEGREE		SPM	O LEVEL	UEC	
Bachelor of Electrical and Electronics Engineering with Honours	Foundation in Science (Track A)	5 Credits in the relevant subjects which must include,	5 Grade C in the relevant subjects which must include,	3 Grade B in the relevant subjects which must include,	
Bachelor of Mechanical Engineering with Honours Bachelor of Mechatronics		: : SPM Credit/O Level Grade C/ UEC Grade B in one mathematics subject and Physics			
Engineering with Honours Bachelor of Electronics Engineering Technology with Honours		AND SPM Pass/O Level Grade E (Pass)/UEC Grade C in English Language			

- a) SPM holders must have at least a pass in Bahasa Melayu and SPM holders from Year 2013 onwards must have at least a pass in Sejarch.
  b) Equivalent qualifications other than the above will be considered on a case-by-case basis.
  c) Subject to the Ministry of Higher Education latest requirements.



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# **STUDENT ACTIVITIES**





### ProDEx 2022

Project Design Exhibition (ProDEx) is an annual exhibition showcasing students' projects. PRODEX 2022 comprising exhibition, project presentation, video competition, judging process, briefing and meeting were conducted virtually. The various projects were judged by academics from TAR UC as well as industry leaders. Among the judging criteria included the projects' viability and practicality in solving various industry challenges.





Industrial Talk on Drone – Past Present & Future (26 February 2022)

The talk focused on the drone industry which included the past, present to future and the ecosystem of drone technology. The interactive and interesting contents of the talk was to expose students to current and industry-relevant knowledge and information about drone technology and its application in the industries.

# **STUDENT ACTIVITIES**





### Virtual Industry Visit to Powerwell Sdn Bhd (24 March 2022)

Through the virtual visit, students were able to view live the production technologies of metal fabrication, including, cutting, bending, laser cutting and assembly of switchgear. This has helped students gain a better understanding about automation and smart factory related to IR 4.0.





### Industrial Talk from Intel Malaysia (25 April 2022)

This is another valuable industry talk which benefited students to understand what are the important skills and knowledge in terms of seeking employment. Students were also able to gain useful tips and solutions to be industry ready and on how to increase their employability.

# **MERIT SCHOLARSHIP**

Automatically offered upon admission



### **Diploma/Foundation Programmes**

<b>Entry Qualification</b>	Criteria	Waiver of Tuition Fee
SPM	Minimum 8A+/A	10097
O Level	Minimum 8As	100%
SPM	8As*	5097
O Level	7As	50%
SPM	7As*	9597
O Level	6As	25%
SPM	6As*	20% Foundation programmes only
SPM	5As*	15% Foundation programmes only

#### \*SPM As : A+/A/A-

### **Bachelor Degree Programmes**

Entry Qualification	Criteria	Waiver of Tuition Fee
STPM / A Level	3As	
Unified Examination Certificate (UEC)	8As	
*TAR UMT/TAR UC Diploma/ *TAR UMT/TAR UC Foundation/ Matriculation	CGPA ≥ 3.8500	100%
South Australian Matriculation (SAM)/ Western Australian Certificate of Education (WACE)/ Higher School Certificate (HSC)	≥ ATAR 95	
Canadian Pre-University (CPU)	≥ 95%**	
STPM / A Level	2As	
Unified Examination Certificate (UEC)	7As	
*TAR UMT/TAR UC Diploma/ *TAR UMT/TAR UC Foundation/ Matriculation	CGPA ≥ 3.7500	50%
South Australian Matriculation (SAM)/ Western Australian Certificate of Education (WACE)/ Higher School Certificate (HSC)	≥ ATAR 90	
Canadian Pre-University (CPU)	≥ 90%**	
Unified Examination Certificate (UEC)	6As	25%
Unified Examination Certificate (UEC)	5As	20%

#### **Including A-**

\*Must have obtained straight passes in all courses (including co-curriculum courses for diploma) \*\*For all subjects with a minimum of 6 subjects

Only applicable for full-time programmes. Terms & Conditions apply.

### For further information, please contact:

Assistant Registrar Faculty of Engineering and Technology Telephone: (6) 03 4145 0100/23 ext. 3235 , 3424 Email: foet@tarc.edu.my (S) 011-1082 5613 & 011-1059 7120

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