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MBOT
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WELCOMING REMARKS FROM THE HEAD OF PUBLICATION COMMITTEE

Nothing excites me more than introducing our first TECHies Bulletin. This special edition is to officially introduce the Malaysia Board of Technologists (MBOT) to the public. It is MBOT's ultimate goal to uplift and honour the profession of technologists in the country.

In this edition, we feature a special foreword from YB Datuk Seri Panglima Madius Tangau, Minister of Science, Technology and Innovation (MOSTI). We also interviewed the President of MBOT, Tan Sri Dato' Academician (Dr.) Ir. Ahmad Zaidee bin Laidin, conveying his aspirations in leading MBOT forward. We also feature articles written by our team and guest journalist. These articles include the history behind the establishment of MBOT, the birth of the Malaysia Technical University Network (MTUN) member universities, and University Kuala Lumpur as leading universities in technical programmes. We also bring you the latest in global leading technology in the Internet of Things (IoT).

TECHies shall be the voice of MBOT, disseminating MBOT's effort in its journey towards achieving its goals. We will communicate technology to the masses and its stakeholders continuously, capture the significant development in the discipline, and create a platform for the technology community to share their thoughts and ideas.

I hope TECHies will be able to play a crucial role in highlighting the contribution of technologists in Malaysia, subsequently communicating technology to the public. We welcome students, industries, educators and the public-at-large to contribute and drive this Bulletin, making it more lively, exciting, and connecting. Write to us and we will be happy to hear from you.

Datin Paduka Ir. Dr. Siti Hamisah Tapsir
Editorial Adviser / Board Member

INSIDE

Malaysian Technical University Network
MTUN

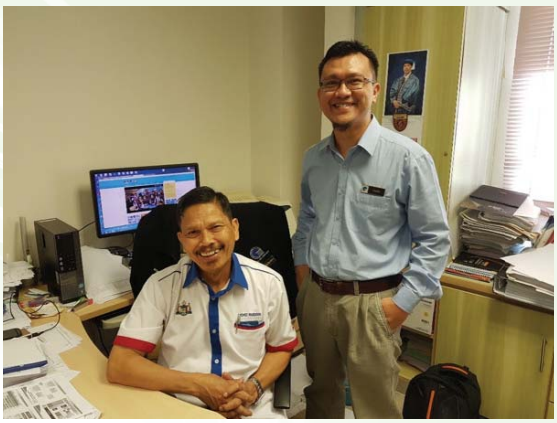
The History and Future of Public Technical Universities in Malaysia

By Assoc. Prof. Dr. Muhammad Fahmi Miskon

This article was produced through an interview session with Datuk Professor Dr. Mohd Ruddin Ab Ghani, Fellow (FASc) of Akademi Sains Malaysia (ASM). Datuk Professor Dr. Mohd Ruddin Ab Ghani also chairs the University Professor's Council of UTeM.

> **"It is the responsibility of an academician to continuously work towards holistic excellence in acculturating knowledge especially in the areas of science and technology for the benefit of all"**
>
> *Datuk Professor Dr. Mohd Ruddin Ab Ghani*

Background



The idea to establish a technical-based institute came into picture in April 1999. It was suggested by the cabinet members that Malaysia should have a number of technical-based institutes of higher learning which run on 70% hands-on and 30% theory. A school system having two streams, namely academic and technical/vocational, was proposed in the cabinet committee report in 1979. At the end of the 7th Malaysia Plan, there were 90 technical schools with 36,000 students. At that time, technical school-leavers could not enrol for Bachelor degree because most Bachelor degree programmes offered in public institutes of higher learning (IHLs) were delivered using theoretical approach. Technical and vocational students could only enrol up to Diploma level, as this was the highest education rank that used practice-oriented approach in the delivery of courses. Diploma graduates back then came from polytechnics, British Malaysian Institute (BMI), German Malaysian Institute (GMI), Malaysia France Institute (MFI), and government public skill centres (IKM).This concern was raised in a Vice-Chancellor Conference on 9 June 1995. A new approach of higher learning that would integrate theory and practical skills was seen as essential in order to increase the number of skilled engineers. The establishment of technical universities was a proactive move to open the doors to higher education for those who come from technical and vocational backgrounds.

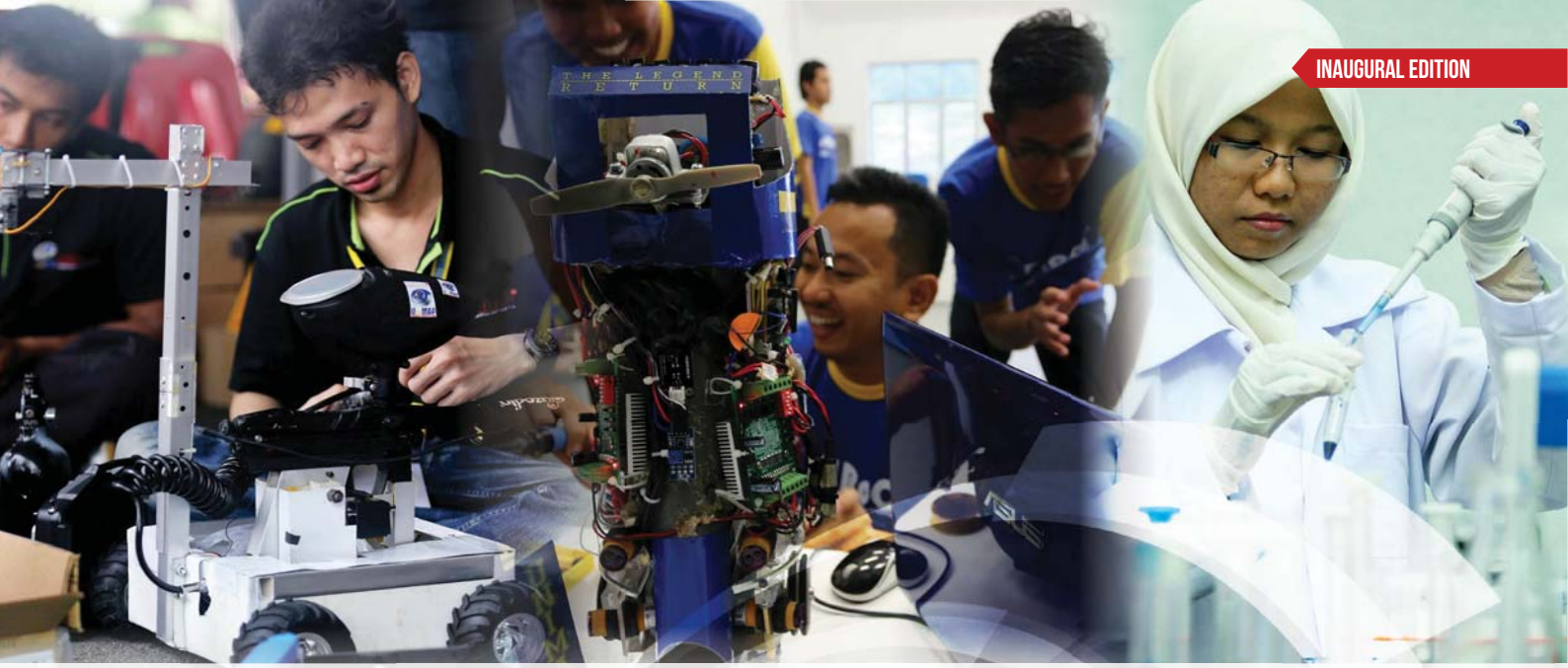
The rationale behind the founding of technical universities

The establishment of technical universities increases the chance of technical and vocational students to further their studies in a learning mode that promotes hands-on training. Practical competencies, when complemented with theoretical learning, produce cutting-edge talents with excellent development potential.

In order to attain sustainability, a developed nation requires a ratio of 40% engineering scientists (involved in research, design and planning activities) and 60% engineering technologists (involved in manufacturing process, operation, services and maintenance activities). This is to balance the workforce in an industry-centric nation. Technical university graduates will complement existing public IHLs in producing a balanced supply of workforce. For this reason, eventually, four university colleges were established:

1. **Kolej Universiti Teknologi Tun Hussein Onn (KUITTHO) - 27 September 2000**
2. **Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM) - 1 Disember 2000**
3. **Kolej Universiti Kejuruteraan dan Teknologi Malaysia (KUKTEM) - 16 Februari 2002**
4. **Kolej Universiti Kejuruteraan Utara Malaysia (KUKUM) - 16 Februari 2002**

On the 1st February 2007, all the university colleges were rebranded into Universiti Tun Hussein Onn Malaysia (UTHM), Universtiti Teknikal Malaysia Melaka (UTeM), Universiti Malaysia Pahang (UMP) and Universiti Malaysia Perlis (UniMAP).



The uniqueness of MTUN universities

The concept of technical universities differs from existing public IHLs particularly in the learning-teaching approach, the type of intake, and the strength of industrial involvement. The curriculum and learning approach are centred on practical-training and application of knowledge. It integrates the theory and practical sides of learning, and focuses on industrial problems through experiential and action learning. The composition of a typical course is 30% hands-on, 30% general fundamental knowledge and 40% specialised fundamental knowledge. Lectures and tutorials are carried out in small-sized classes and delivered by lecturers having industry experiences. The learning modules are flexible and student-centred as they are tuned to the student's capability and interest. Intakes of MTUN universities are candidates having Matriculation qualification, STPM, SPM/SPMV, Diploma, certificates, and experienced workers, especially those with Malaysia Skill Certificate. Industrial involvement is one of the most important strategic factors to ensure that graduates are able to fulfil industrial demands. This is gained through smart partnerships with the industry. The courses and programmes are designed with input from industrial advisory panels. Among the programmes carried out with the industry are staff attachment, industrial training, industry talks, and many others. All the programmes give exposure to the participant on practices, issues, and problems found in the industry.

Critical success factors of technical universities

It is important for technical universities to maintain low student-to-staff ratio in order to provide sufficient facilitation and to allow close supervision and monitoring. The staff should be equipped with industrial experiences so as to be more emphatic in what the industry expects from the students. Student-to-equipment ratio should also be low to ensure each individual has sufficient opportunity to experience the application of knowledge. Technical universities must have continuous support from the industry in terms of developing industry- driven curriculum as well as in the provision of resources to support the learning process. Finally, technical universities must be creative and innovative in learning and teaching practices, taking into account limited resources and considering the relevant accreditation body's requirements

The future of technical universities

MBOT is a platform that recognises professional technologists and certified technicians as professionals. It also monitors and regulates their practices. Through this platform, graduates of technical universities will have the opportunity to be recognised as professional technologists. MTUN engineering technologist programmes provide an alternative route into becoming professional engineers, with the addition of several courses taken at a post -graduate level. It is envisaged that technical universities will become important producers of professionals in the nation.

The establishment of technical universities is a vital mechanism in supporting Vision 2020 and beyond. Technical universities also play an important role in the Malaysia Education Blueprint Shift number 4: Quality TVET graduates in high technology industries. Technical universities should address industrial demands in a more focused manner. They should be quick in responding to the nation's needs, particularly in high technology industries.