

Research Article

# Enhancing Graduates' Employability through the Telecommunication Engineering Competency Certificate Programme

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**Abstract:** Graduate employability is a key factor in promoting and generating economic growth for the nation. The Malaysian government has undertaken a number of measures to address the issue of graduate employability through collaboration between academia and industry. An Economic Regeneration Plan, also known as PENJANA KPT-CAP (Career Advancement Programme), which is actively being implemented to boost the marketability of human capital is one of the actions that have been taken through grant programmes. In order to support government initiatives to ensure that the rate of graduate employability continues to increase and successfully, especially after the pandemic, the Telecommunications Engineering Competency Certification Programme with the innovative development of a complete package module specifically for telecommunications engineers has been developed involving graduates who have not yet been successful in finding work. The main goal of this programme is to raise the graduates' skills and competence to the levels necessary for entry-level employment while adding value to professional certification to help raise graduates' marketability and make them more competitive for jobs in the highly sought-after telecommunications sector both domestically and abroad. The developed module's content guaranteed that participants have a thorough understanding of the range of work that is crucial for the telecoms business. Overall, the participants gain a lot from this initiative since, in addition to improving their self-marketability with the certificate they receive, they are also provided with job placement assistance after completing training that has met the standards established by the industry.

**Keywords:** Graduate employability; telecommunications; professional certification.



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## 1. INTRODUCTION

The marketability of human capital is an important agenda that needs to be given serious attention by all parties involving the government, IPT, industry, students and even parents. The development and marketability of human capital is a critical element in transforming the country's economy towards high income. Human capital marketability issues such as the availability of human capital, 21st-century human capital trends and the labor market ecosystem are issues that cannot be

underestimated. This problem is often linked to the weak marketability of graduates in marketing themselves in the real world of work. The low quality of marketability of human capital indirectly leads to an increase in the country's unemployment rate. In the long term, this situation will affect the progress and growth of the country's economy. JobStreet (2018) in its study found that the five main factors that graduates fail to get a job are because they apply for irrelevant salaries or benefits (68%), lack of English language proficiency (64%), too much choice of work and industry they want to enter (60%), weak in communication (60%) and no convincing personality and character (59%). In addition, there are still some issues that are often discussed, namely the mismatch of skills required by employers, as well as the inefficiency of matching industry demand compared to job supply.

Based on the literature review, several definitions of human capital have been presented by past researchers according to the perspective of the field being studied. Rahman et al. (2021) defined human capital as the labor force in an organization and country that contributes to economic benefits and value. Humans are the most valuable capital because they have wisdom, ideas and expertise in solving a problem. The education process that is carried out in an orderly manner will produce excellent people, which will then become useful capital for the development and prosperity of the country.

Formal education is one of the prerequisites for employment. After achieving excellence in the academic field, graduates will move on to the next phase of life, which is the world of work. The transition from the learning phase at IPT to the world of work requires adequate preparation. Apart from having academic skills and qualifications, graduates also need to be prepared in terms of mental, physical, emotional, communication and skills. A study conducted by Khazanah Research Institute (2018) found that learning at HEIs focuses more on academics than soft skills and work experience. On the other hand, employers expect human capital from IPT to have soft skills (50%), work experience (31%) and technical skills (27%). In addition to basic skills, graduates as potential employees need to have problem-solving skills, self-management, teamwork, technology use and development. This issue occurs when the learning experience does not support the production of talented graduates (World Economic Forum, 2020). The lack of preparation to enter the world of work causes graduates to fail to convince employers to hire them. The difficulty of getting a job is often linked to the issue of the marketability of human capital (Alwi et al., 2020).

The strategies that have been drawn up to increase the marketability of human capital must be implemented diligently so that all parties benefit from them. The country's desire to produce holistic and balanced human capital while ensuring that the marketability percentage of HEI graduates remains above 80% can also be achieved. The Higher Education Minister said last year's graduate tracking research showed that graduates' employability rate at the national level was 85.5%, an improvement from 84.4% in 2020 [9]. However, there is still a lack of research that examines the effectiveness of the strategies that have been implemented by IPT, KPT and stakeholders. The rest of the paper is organized into five different sections. Section II explains the strategy for increasing graduate employability and Section III explains the methodology of the research. Measurement results, discussion, and analysis are described in Section IV and finally, a conclusion is drawn in Section V.

## **2. STRATEGY FOR INCREASING GRADUATE EMPLOYABILITY**

UiTM was awarded a grant named the Telecommunications Engineering Competency Certification Program. The main objective of this program is to improve the skills and competence of graduates to the competencies required before entering employment as well as providing added value to professional certification to help increase the marketability of graduates to be competitive in obtaining jobs in the telecommunications sector which are much needed in the country and abroad.

Therefore, this programme named as a Telecommunications Engineering Competency Certification with the innovative development of a complete package module specifically for telecommunications engineers has been developed involving graduates who have not yet been successful in finding work. This program supports the initiatives that have been taken by the government to ensure that the rate of graduate employability continues to increase and successfully weather the economic crisis after the pandemic.

The field of telecommunications engineering offers unique opportunities in various industries and career prospects for telecommunications engineers (skilled worker category) are very bright in Malaysia due to the increased need for the position due to the development of the manufacturing sector, development and higher investment. Along with the advancement of technology, from an academic point of view, the unique formation of students' skills at the university level is very necessary and should be stressed by providing quality programs and meeting the country's employment needs in the future. Graduates produced by institutions of higher education have a general degree, but specific skill requirements should be provided to them as an added value that is much needed by a thriving industry.

This accredited Telecommunications Engineering Competency Certification Program is a certification given to those who have successfully gone through comprehensive training covering telecommunications networks, data communications, wireless communications and microwave devices. Those who follow this program are exposed to solving real issues at Telco sites to prepare for the high-quality and high-quality skills needed in the real field. The content of the module that will be delivered will ensure that participants have a comprehensive understanding of the scope of work that is very important for the telecommunications industry. A site survey is one of the requirements to provide sufficient information for the construction of the coverage network of a planned Telco service area. This will give the participants an advantage for the job market that is in dire need of this recruitment. Telecommunications Engineers need to have the skills to work in high places such as climbing substation towers with a certificate of involvement in the 'Dirty, Difficult and Dangerous' or 3D sector. Awarding this certification will ensure that employees meet the requirements of working at height, especially on the roof of a building or any Telco tower.

In addition, a Safety Passport is a requirement to access Telco sites and a CIDB Green Card to enter any Telco site. This is required by employees in fulfilling the 'Permission Permit to Work' and awarding a certificate through this program can add value and competitiveness to the company's assets. This program also contains UiTM's 'polishing attitude/values' intellectual property (IP) module for improving the personality and self-worth of graduates which emphasizes the value of loyalty, work ethic, career development, language skills, communication skills and others. The results of the study show that there is a gap in non-technical skills among skilled workers as required by employers. These non-technical skills include entrepreneurship, critical thinking, communication and the motivation of skilled workers which make them fall short of the will of the market. Therefore, this aspect needs to be taken into account in the module to ensure marketability can compete domestically and abroad. The standard and added value of this competency certificate also allow them to serve at the international level. With this certification, they are recognized as having reached the level of competency skills from the Telco, DOSH and CIDB industries. Those who receive this certification are recognized as highly skilled, and quality and are a source of reference for the department because they have been fully accredited and no longer need to take outside certification to start a new job.

### 3. METHOD



**Figure 1.** Activities during training sessions

A total of 115 graduates from various HEIs are offered in this program. Figure 1 shows the training conducted during the session. Through participating in this program, graduates get added

value skills and professional certification and when they are called for an interview they will be confident and able to compete with advantages. This program has been implemented by a UiTM spin-off company registered with the Malaysian Ministry of Finance that is authorized to provide services to operate this program. Each participant needs to attend the entire module for 15 days as in Table 1. This program was held at the School of Electrical Engineering, UiTM Shah Alam to reduce implementation costs and provide convenience to participants because UiTM has complete facilities and infrastructure. This is part of UiTM's efforts to help increase the marketability of graduates by using existing internal strengths while reducing the cost of allocations and grants from the government.

Utechtium Sdn. Bhd. was chosen because it meets the requirements according to the Malaysian treasury, which is a company registered with the Malaysian Ministry of Finance to supplies the necessary training services. The certificate issued by the company is also a valid certificate based on the serial number of each participant. At the end of the program session, participants are eligible to sit an assessment test for the recognition of competency certification and after reaching a working period of three years, they can sit an interview to qualify them to be registered as Professional Engineers.

**Table 1.** Developed Program/certification modules

| NO | MODULE                                                                                   | LEARNING OBJECTIVE & OUTCOME                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----|------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | <b>Module 1: Telecommunication Fundamental</b>                                           | Learning Objective: The trainee is required to know about how the mobile Telco had been evolving and the history of the evolution to ensure that the trainee would understand the work scope that needs to be done.<br>Learning Outcome: By completing the module, the trainee shall have better knowledge and be able to answer any technical question related to mobile Telco technology and architecture.                                              |
| 2. | <b>Module 2: Site Survey Implementation</b>                                              | Learning Objective: Site Survey is one of the preliminary requirements of building any Telco sites. The topics that will be delivered will ensure the trainee has a better understanding of the job scope that is crucial for them.<br>Learning Outcome: The completion of the module would give the trainee value to the current job market which requires hiring for Site Surveyor.                                                                     |
| 3. | <b>Module 3: Monitoring Cellular Activities using Indoor and Outdoor Drive Test Tool</b> | Learning Objective: To familiarize with hardware and software for monitoring cellular activities related to signal quality in indoor and outdoor environments.<br>Learning outcome: The completion of the module would give the trainee to collect and analyze data related to 2G, 3G and LTE signal quality for any operators in outdoor and indoor environments.                                                                                        |
| 4. | <b>Module 4: Generating Smart Report</b>                                                 | Learning Objective: Generating reports are mainly required for any project delivery. Trainee shall be competent in handling the data and perform any report requirement in short time.<br>Learning Outcome: With the implementation of tips and tricks to the report generation, a 'smart' report can be idealize and visualization of the data could be presented in the best way possible thus a bring a high value skill to the trainee in the future. |
| 5. | <b>Module 5: Working at Height Certification</b>                                         | Learning Objective: The trainee would need to have essential skills of working at height together with the certification as the job requirement would involve part of the 3D jobs (Dangerous and Difficult except for Dirty).<br>Learning Outcome: By completing the certification would ensure the trainee to comply with the needs of working at height especially on                                                                                   |

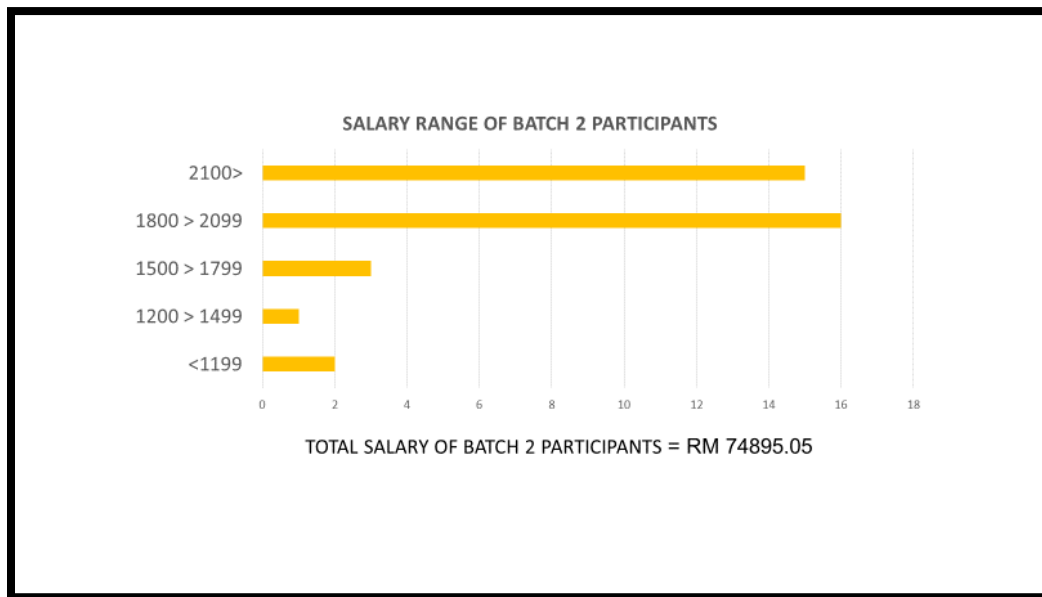
|    |                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                       |
|----|----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    |                                                                            | rooftop of a building or any Telco tower.                                                                                                                                                                                                                                                                                                                                                             |
| 6. | <b>Module 6: NIOSH-TM Safety Passport</b>                                  | Safety Passport is one of the requirements when it comes to accessing the Telekom Malaysia sites. It is required by the trainee in the Permit to Work Approval thus would improve the value of what the trainee could offer to any company.                                                                                                                                                           |
| 7. | <b>Module 7: CIDB Green Card</b>                                           | CIDB Green Card is one of the essential requirements of entering any Telco sites. It is required by the trainee in the Permit to Work Approval thus would improve the value of what the trainee could offer to any company.                                                                                                                                                                           |
| 8. | <b>Module 8: Holistic Success Module (HSM) - Polishing Attitude/Values</b> | <ul style="list-style-type: none"> <li>a) Minda Kelas Pertama: "Positive, Proactive and Participative"</li> <li>b) Budaya Usahawan: Formula Kecemerlangan BCA</li> <li>c) Ketahanan mental: Sedia berkorban dan merebut peluang</li> <li>d) Komunikasi berkesan: Mendengar, Menyampaikan dan Melontar idea</li> <li>e) Perancangan dan pelaksanaan: Pengurusan Aktiviti vs Pengurusan Masa</li> </ul> |

#### 4. FINDINGS

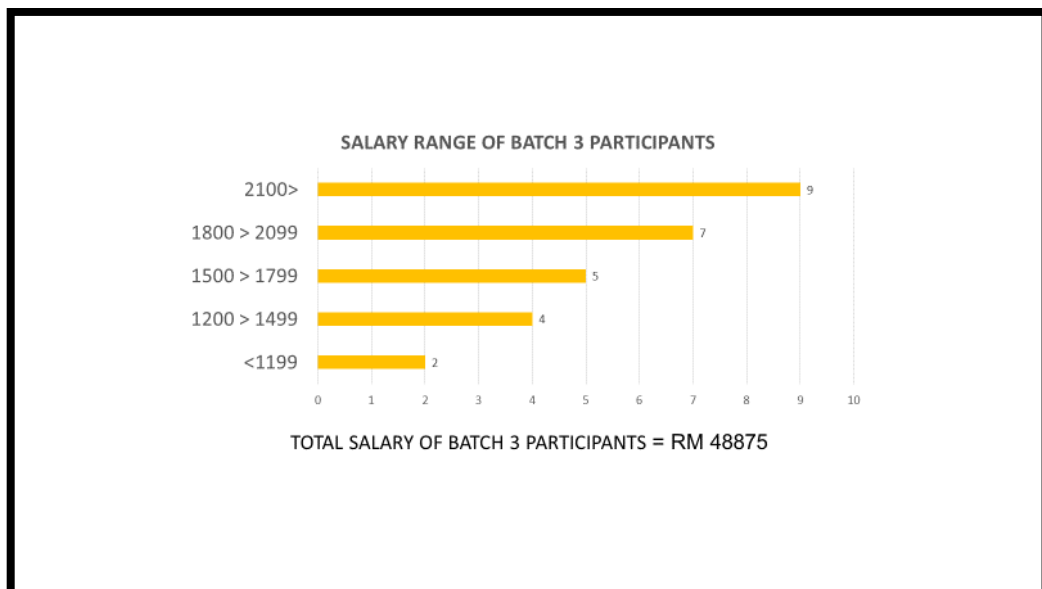
This section discusses the results of analyzing the monthly income of participants who have completed the training and got a job. Figure 2-4 show the data obtained as a result of a survey conducted on 3 batch participants who have completed the training. Based on data trends throughout 3 batches, more than 50.0 percent of the participants earn a monthly income in the range of RM2100 & above.



Figure 2. Salary range of batch 1 participants



**Figure 3.** Salary range of batch 2 participants



**Figure 4.** Salary range of batch 3 participants

## 5. CONCLUSION

Participants who go through this program get a Telecommunications Engineering Competence Certificate where the developed modules are recognized by the Telco industry, DOSH and CIDB. This competency certificate shows that participants have the skills required by the telecommunications industry and various other industries including the contractors involved. Participants who have this certificate are very much needed to make it easier for them to get a job because the skills they possess are not formally taught at universities but are only carried out by training centers that play a role in improving specific skills that are needed and recognized by the industry. The industry gives priority to new graduates who have these specific skills compared to engineering graduates from ordinary public universities.

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