Guidelines on Development and Implementation of INDUSTRY MODE PROGRAMME

TECHNOLOGY & TECHNICAL ACCREDITATION COUNCIL

First Edition: 2024

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MALAYSIA BOARD OF TECHNOLOGISTS

Guidelines on
Development and Implementation of
Industry Mode Programme

First Edition: 2024

Malaysia Board of Technologist
A1-3-1 & A1-3-3, Ayer@8
Jalan P8G, Presint 8
62250 Putrajaya

Tel : +603-8800 6268
Fax : +603-8800 6208
E-mail : info@mbot.org.my
Website : www.mbot.org.my

The publication is available at www.mbot.org.my

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ADVISORY PANEL

No.	Panel Member	Organisation
1.	Prof. Dr-Ing. Nik Abdullah Nik Mohamed (Leader)	UCSI University Kuala Lumpur
2.	Prof. Ts. Dr. Mohd Rusllim Mohamed	Faculty of Electrical and Electronics Engineering Technology Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA)
3.	Assoc. Prof. Dr. Wan Zuhainis Saad	Faculty of Biotechnology and Biomolecular Sciences Universiti Putra Malaysia (UPM)
4.	Mr. Mohd Hisham Abdul Mutalib	Penang Skills Development Centre (PSDC) Bayan Lepas, Pulau Pinang
5.	Ir. Hazrin Fazail Haroon	Perusahaan Otomobil Nasional Sdn. Bhd. (PROTON) Kuala Lumpur

TASK FORCE

No.	Member	Organisation
1.	Assoc. Prof. Ts. Dr. Muhammad Fahmi Miskon (Chairperson)	Faculty of Electrical Engineering Universiti Teknikal Malaysia Melaka (UTeM)
2.	Assoc. Prof. Ts. Ir. Dr. Tan Lai Wai (Standard Writer)	Faculty of Civil Engineering and Built Environment Universiti Tun Hussein Onn Malaysia (UTHM)
3.	Assoc. Prof. Ts. Dr. Hamzah Ahmad	Faculty of Electrical and Electronics Engineering Technology Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA)
4.	Assoc. Prof. Ts. Dr. Mohd Nizam Husen	Universiti Kuala Lumpur Malaysian Institute of Information Technology (UniKL MIIT)
5.	Ts. Ir. Dr. Wan Mohd Faizal Wan Abd. Rahim	Faculty of Mechanical Engineering and Technology Universiti Malaysia Perlis (UniMAP)
6.	Ts. Dr. Mohammad Kamil Sued	Faculty of Industrial and Manufacturing Technology and Engineering Universiti Teknikal Malaysia Melaka (UTeM)
7.	Ts. Dr. Nor Aznan Mohd Nor	Technology and Technical Accreditation Secretariat (TTAS) Malaysia Board of Technologists (MBOT)
8.	Dr. Mohd Akmal Rohiat	Faculty of Technical and Vocational Education Universiti Tun Hussein Onn Malaysia (UTHM)
9.	Ts. Mohd Hanifiah Mohd Haniff	Division of Technical and Vocational Education and Training (BPLTV) Ministry of Education Malaysia (MOE)
10.	Ts. Mohd Shamsul Husin	Sika Kimia Sdn. Bhd. Sika Malaysia
11.	Ts. Joel Lim Soon Yeen	Black Stone Ventures
12.	LAr. Dr. Rohaniah Mohd Nor	Department of Polytechnic and Community College Education (JPPKK) Ministry of Higher Education (MOHE)
13.	Puan Rohasni Mohd Sidek	Standards Division Malaysian Qualifications Agency (MQA)
14.	Encik Mohd Khairi Rahim	Composites Technology Research Malaysia (CTRM)
15.	Encik Abdul Halim Sulaiman	Composites Technology Research Malaysia (CTRM)

ABBREVIATION

APEL.A	Accreditation of prior experiential learning for purposes of admission/access into a programme of study under various Malaysian Qualifications Framework (MQF) levels.
APEL.C	Accreditation of prior experiential learning for purposes of awarding credits for courses within a programme of study.
APEL.M	Accreditation of prior experiential learning for purposes of obtaining the award of qualifications under various Malaysian Qualifications Framework (MQF) levels through the completion of unbundled or stand-alone micro-credentials.
APEL.Q	Accreditation of prior experiential learning for purposes of awarding academic qualifications under various Malaysian Qualifications Framework (MQF) levels.
CQI	Continual Quality Improvement
DOSM	Department of Statistics Malaysia
EP	Education provider/TVET provider
EPU	Economic Planning Unit, Malaysia
HRD Corp	Human Resource Development Corporation
ILMIA	Institute for Labour Market Information and Analysis
MBOT	Malaysia Board of Technologists
MIDA	Malaysia Investment Development Authority
MOHE	Ministry of Higher Education Malaysia
MQA	Malaysian Qualifications Agency
TalentCorp	Talent Corporation Malaysia Berhad
Tc./C.Tech	Certified Technicians
Ts./P.Tech	Professional Technologists
TVET	Technical and Vocational Education and Training
WBL	Work-based learning

INTRODUCTION

Industry mode programme involves the combination of on-campus and off-campus learning (real learning application at the workplace) throughout the study period, involving the education provider and industry in curriculum development and delivery. The programme provides an integration of academic learning with practical, real work experience related to 'technology and technical services' in the respective field. It is offered through industry mode which adopts the work-based learning (WBL) delivery approach. In the context of these guidelines, industry is an 'economic activity' that is concerned with the 'production of goods' and 'service offerings' related to technology and technical services recognised by MBOT.

MBOT's Technology and Technical Accreditation Standards for TVET sector and Academic sector have outlined the requirement of 7 criteria to be fulfiled by EP. Therefore, these guidelines clarify requirements when the standards are applied on industry mode programme.

The main principles of these guidelines are:

1. Ensure compliance with MBOT Accreditation Standards with considerations to practical implementation, flexible education and sustainability of programme (in terms of cost, quality and benefits)
2. Ensure fulfilment of industry needs and requirements while promoting high technology and high value of TVET
3. Embed value-based education at the workplace by inculcating ethics and professionalism
4. Adopt learning organisation practices, including systems thinking and shared vision

Based on the above principles, these guidelines focus on assuring that the quality of programme is in conformity with MBOT Accreditation Standards and in accordance with the Technologists and Technicians Act 2015 (Act 768). It is also essential to take into account the short-term and long-term costs, benefits as well as practical implementation of programme in regard to the strengths and limitations of parties involved.

The guidelines emphasise that fulfilment of industry needs and requirements is the utmost important, making sure that the programme is relevant and in high demand. At the same time, innovative and cutting-edge technology is promoted to ensure that the programme remains relevant while the industry can increase productivity and explore new opportunities through innovative approaches and continuous improvement.

The guidelines also facilitate flexible pathways, whereby industry employees can benefit most through the industry mode programme by upgrading themselves through earn and learn approach.

Instilling values in the workplace are unique to industry mode programme. Extended workplace exposure and higher responsibilities allow the practices of code of ethics and professional conducts, whereby behaviour and attitudes towards good values can be improved over time with guidance and good examples by mentors and colleagues.

The guidelines also emphasise on shared vision and systems thinking, in which overall work process and their interconnection is established and made aware to stakeholders. The industry mode programme involves structured mapping of 'work processes', 'tasks', 'competencies' and course learning outcomes in development, manufacturing, testing, commissioning, maintenance and other processes. Clear processes, techniques and their relation to overall work allow technologists and technicians to understand their involvement and the impact they have on the overall process as well as for improvement to take place systematically.

The guidelines assist in interpretating MBOT Accreditation Standards for industry mode programme implementation. Therefore, the guidelines are arranged into sections in accordance to the 7 criteria in the standards. In each section, standards requirement with its numbering, which requires further elaboration is displayed in a box for easy reference.

Different emphases are put on the elaborations by using modal verbs of "shall", "must", "should", "can", "could" and "may". "Shall" and "must" are expressed as "obligation". "Should" functions as "highly recommended", whereby if a particular guideline is not met, an alternative approach must be put forward to ensure that purpose of the related standard is fulfiled effectively. Meanwhile, the verbs "can", "could" and "may" are used to indicate "possibility".

CRITERIA 1

1. PROGRAMME DESIGN AND DELIVERY

1.1 Market Survey and Analysis

Related TVET Sector Standard:

2.6(i) Needs analysis shall be carried out through surveys and data analytics from respective agencies to ensure that the programme meets the stakeholders' demands for programme sustainability.

Related Academic Sector Standard:

2.6(i) Needs analysis shall be carried out through surveys and data analytics from respective agencies to ensure that the programme meets the demands of stakeholders and secure the long-term sustainability of programme.

1. Needs analysis is systematic continuous process of identifying and evaluating requirements, gaps, or deficiencies to determine solutions for programme improvement or development.

2. Information on industry preferences and market trends is gathered for decision-making in programme development through a market survey. Relevant information include:

    i. Market size - Quantify the overall market size (industry demand for occupation) and specific segments (level of qualification and specialisation)
    ii. Trends - Identify patterns and future trends in industry behaviour, preferences and dynamics of market
    iii. Demographics - Analyse characteristics of target industry, such as their location and sector
    iv. Risk assessment - Identify potential risks and uncertainties in demands of industry

3. Needs analysis should be conducted periodically to address the ever-changing trend of supply and demand of workforce. This is to ensure long-term sustainability of the programme.

4. Programme should align with industry demands on global and local scenarios and with respective technological and technical services. Information can be found in government and non-government documents, policies and masterplans that can be obtained from various agencies, including but not limited to MIDA, TalentCorp, DOSM, ILMIA, EPU, HRD Corp, World Economic Forum, UNESCO and others. An example of such documents is the New Industrial Master Plan 2030 (NIMP) which provides national strategic directions for industrial development and covers 21 economic sectors.

5. EP can be instrumental in addressing critical global and local challenges. EP has a role to provide the next generation of leaders, innovators and intellectuals with knowledge and skills necessary to comprehend the global and local challenges that confront the world and the role they can play in addressing them. For example, the World Economic Forum has listed in-demand skills (such as complex problem-solving skills, critical thinking, resilience, stress tolerance and flexibility) in future jobs that cut across all industries.

6. Sustainability of the programme should be evident from the market survey and needs analysis conducted.

1.2 Stakeholders Involvement in Curriculum Design, Delivery and Assessment

Related TVET Sector Standard:

2.6(ii) Evidence of stakeholder's involvement in curriculum design, delivery and assessment are required to ensure that the programme meets the stakeholders' expectations and to continuously improve the key aspects of programme.

Related Academic Sector Standard:

2.6(ii) Evidence of the stakeholder's involvement in the curriculum design, delivery and assessment is required to ensure that the programme meets the stakeholders' expectations and to continuously improve the key aspects of programme.

7. Stakeholders' involvement should be evident in their detailed input on:
   i. job and task at industry and a system overview of overall processes/tasks (interrelation between processes)
   ii. relation of task at industry to the competencies in technology and technical profiles (refer standard) and course learning outcomes

8. The evidence can be in the form of:
   i. reports or minutes of meetings by curriculum committee which show a systematic approach to get the stakeholder's input
   ii. proof of actions taken based on stakeholder's input

1.3 Curriculum Content and Structure

Related TVET Sector Standard:

2.6(iii) Programme shall ensure that the content and structure are continually kept abreast with the most current technological advances, professional practices and international best practices in the field, including the needs of stakeholders.

Related Academic Sector Standard:

2.6(iii) It is required for the content and structure to continually keep abreast with the most current technological advances, professional practices and international best practices in the field, along with the needs of stakeholders.

9. Curriculum content and structure should take into account the following:
   i. current technological advances, which are new and emerging technologies that are becoming trends in the practices
   ii. professional practices, such as MBOT code of ethics and practices as well as industry professional practices
   iii. international best practices in the field in terms of technology use
   iv. needs of stakeholders, including aspects other than technical, especially financial, legal and risk assessment

10. In terms of content that is continually kept abreast, higher-level qualifications should have sufficient knowledge components to address complexity of the work activities.

11. Industry mode programme content and structure that is kept abreast should be relatable to the actual situations at the workplace during teaching & learning activities. For example, for the final year project, students can propose current technological advances for continuous improvement at the workplace. As for ethics and professionalism course, students can practise MBOT code of ethics during work.

12. In instances in which the industries do not adopt current technological advances, curriculum should ensure that students are aware of the technological advances while they are being trained to use existing technology at the workplace. The curriculum should also expose students to technology adoptions and change management.

1.4 Teaching & Learning Methods

Related TVET Sector Standard:

2.6 The programme shall adopt appropriate teaching & learning methods to ensure achievement of programme PLOs.

Related Academic Sector Standard:

2.6 EP shall ensure that each programme delivery adopts various teaching & learning methods that are appropriate to ensure the achievement of programme GAs and TPs.

13. In industry mode, the teaching & learning methods shall be appropriate to learning at the workplace. Experiential learning approach and competency-based education can be considered. These include problem-based learning, case study and others.

14. The inclusion of industry best practices, including the application of tools and techniques during work, should be deliberately planned to suit teaching & learning methods. The work environment (safety and sustainability) and industry support in the delivery should be considered when planning for appropriate teaching & learning methods.

15. Appropriate teaching & learning methods encompass the following:
    i. Method - Suitable for industrial learning outcomes while considering available work process and level of access to the actual work

ii. Best practice - Introduction of best practices in the industry, including the use of techniques and tools. This should be aligned with the best practices identified in Criteria 1.3 Curriculum Content and Structure

iii. Industry involvement - Strong support from the industry which provide mentors, work environment, facilities, work activities, amongst others

iv. Work environment - Exposure to an industrial environment to set the right mindset and attitude

1.5 Industry Mode

Related TVET Sector Standard:

2.6 The programmes shall be offered in industry mode, which is in the form of cooperative studies or apprenticeship, adopting work-based learning approach that complies with the minimum requirement of a programme structure for technologist/technician with regard to the MQF levels (Table 4.0).

Related Academic Sector Standard:

2.6 Table 4.0 shows the minimum requirement of a programme structure for technologist/technician with regard to the MQF levels.

16. Industry mode is a type of programme offering that involves a combination of on-campus and workplace learning. It emphasises learning from actual work activity within the study period, involving education providers and industry in curriculum development and delivery.

17. Programmes that are offered through industry mode shall adopt work-based learning (WBL) mode of delivery. Work-based learning refers to structured approaches that integrate practical, real-world work experiences into academic learning.

18. Cooperative study (JPT, 2017) and apprenticeship (JPT, 2023) are the two main forms of programme offering. **Figure 1** shows examples of cooperative study and apprenticeship programme structure. In industry mode, students can also hold the role of employees, particularly in the apprenticeship programme.

Learn Then Earn model

- **Cooperative (2u2i/3u1i etc)**
- *Learning for work*
- ≥ 20% Industry
- Full-time student
- *University-driven*
- Delivery by day/block release
- Industrial mentor involvement

Example of structure

	Year 1	Year 2	Year 3	Year 4
Sem 1				
Sem 2				

Legend: Education Provider Industry

Earn & Learn model

- **Apprenticeship**
- *Learning at work*
- ≥ 80% Industry
- Full-time employee
- *Industry-driven*
- Delivery by day/block release
- Industrial mentor involvement

Example of structure

	Year 1	Year 2	Year 3	Year 4
Sem 1				
Sem 2				

Legend: Education Provider Industry

Figure 1. Characteristics of cooperative study (Learn then Earn model) and apprenticeship (Earn & Learn model) with examples of on-campus and off-campus structures

19. At least 20% of total minimum graduating credits must be delivered through WBL approaches, subjected to level and field of programme. A course is identified as a WBL course if a minimum of 30% of the course credit is delivered through WBL approaches. Only field core, field elective and structured industrial training courses can be considered as part of WBL courses. Further, industrial training course can be exempted and replaced with relevant courses delivered at the workplace.

20. Note that the following are conventions used to categorise mode of offering, mode of delivery, mode of study as well as teaching & learning methods:
    i. Mode of offering - Industry mode/coursework/research/mixed-mode
    ii. Mode of programme delivery - Conventional (<= 60% blended/ online learning)/Open and Distance Learning (ODL) (> 60% online learning)
    iii. Mode of study - Part-time/full-time
    iv. Teaching & learning method - Lecture, tutorial, industrial training, work-based learning, online learning, blended learning and others

1.6 Mutual Agreement

Related TVET Sector Standard:

2.6 Mutual agreement shall be made between TVET provider and industry partners in the programme delivery.

Related Academic Sector Standard:

5.1.1 For industrial-based learning or programme conducted through the industrial mode/apprenticeship, EP shall have a proper mutual agreement with the respective industry.

21. EP and industry shall mutually agree on the following:
    i. Period of cooperation
    ii. Scope of training
    iii. Total number of students' placement
    iv. Access to facilities, equipment and other resources
    v. Appointment and responsibilities of industry mentor
    vi. Responsibilities of EP and industry
    vii. Termination of agreement

22. Scope of the training should address curriculum delivered during placement, as well as coverage of the technology/technical profiles to ensure that delivery is aligned with the curriculum.

23. Suitable facilities, equipment and other resources should be provided for effective delivery of industry mode implementation.

24. Differentiation should be made on responsibility of the industry to students and programme between the implementation of cooperative and apprenticeship programmes. For example, in the apprenticeship mode, the student is also an employee. In this situation, the industry mentor has the responsibility as supervisor to a worker as well as a trainer to a student.

25. Emphasis on the responsibilities of EP and industry should include ensuring adequate staff to enable the teaching facilities intended function and compliance with safety requirements. Other emphasis on the responsibilities of EP and industry is in ensuring that the programme is financially viable and sustainable for its operation and maintenance.

26. The mutual agreement signed shall only be with a legally registered company. The agreement should consider requirements of relevant laws such as the Employment Act 1955 for apprenticeship programme offering.

27. The following are main characteristics expected of an industry partner:
    i. Has work process that matches related competency in technology/technical profiles
    ii. Has industry mentors who are qualified and competent in mentoring practice
    iii. Has sufficient or has access to appropriate educational resources

    These and other characteristics are further elaborated in related criteria throughout the guidelines.

1.7 Conducive Learning Environment

Related TVET Sector Standard:

2.6 The programme shall ensure adequate resources are established to guarantee the achievement of programme PLOs, as well as to provide a conducive learning environment which nurtures scholarly, creative and professional development.

5.2.3 Each teaching facility shall be adequately staffed to enable its intended function and compliance with safety requirements.

Related Academic Sector Standard:

2.6 Prior to conducting the programme and throughout the delivery of programme, EP shall ensure adequate resources are established to guarantee the achievement of programme GAs and TPs, as well as to provide a conducive learning environment which nurtures scholarly, creative and professional development.

28. A conducive learning environment refers to having facilities, raw materials, machinery, tools, resources, amongst others, that are necessary for students to gain competency from the course.

29. Industry partner should make arrangement with their partners, vendors or customers to provide exposure on learning activities that is not covered at their workplace. EP and industry partner should ensure that

learning activities and its facilities at various locations are well planned and executed.

30. Adequate staff for teaching facility ensures that the facilities meet its standard usage and comply with safety requirements. This is usually apparent in the term of reference for the appointment of staff or in the work schedule.

1.8 Team of Instructors

Related TVET Sector Standard:

2.6 The programme shall involve a team of instructors, which comprise a mentor from the industry and a visiting lecturer/supervisor from the university for teaching & learning activities, including evaluation and assessment during student attachment at the industry.

Related Academic Sector Standard:

2.6 Programmes adopting the industry mode/apprenticeship shall ensure that the student's placement is appropriate and their mentors in the industry are well-trained to achieve the programme learning outcomes.

31. Records of teaching & learning activities, including the agreed teaching plan, evaluation and assessment records, as well as improvement feedback, can be used as evidence of instructor involvement. Delivery and delegation of responsibility amongst team of instructors should be coordinated.

CRITERIA 2

2. STUDENT ASSESSMENT

2.1 Constructive Alignment

Related TVET Sector Standard:

3.1 The assessment alignment to PLOs shall be appropriately implemented.

3.3 The principles of constructive alignment shall be adhered in defining learning outcomes and aligning outcomes with assessments, teaching strategies, and learning activities.

Related Academic Sector Standard:

3.1 The assessment methods shall be mapped to Graduate Attributes clearly and precisely.

3.3 The principles of constructive alignment shall be adhered to when defining learning outcomes and aligning the outcomes with assessments, teaching strategies, and learning activities.

1. In defining learning outcomes, alignment shall be made between learning outcomes and the job and task at industry, as well as their standard and best practices in industry and competencies in technology/technical profiles.

2. The systems thinking approach and having a shared vision are highly encouraged in programme development and delivery. Systems thinking seeks to understand interdependence amongst people and processes working together as a whole system. Shared vision is when everyone owns the same vision and has the focus and energy for learning. For this reason, interrelation between processes in the industry and at the workplace and competencies in technology/technical profiles should be established and shared effectively between stakeholders.

3. Industry mode provide opportunity for application of good values at the workplace. Deliberate planning and implementation should be given to the application of good values and development of moral character needed in the profession when performing tasks at the workplace. The

planning includes alignment between requirement for professional practice and the learning outcomes, delivery and assessment.

4. As instilling values deals with abstract concepts, planning should emphasise on making the plan clear for all stakeholders. This includes accurate definition of the value, context of value application at the workplace scenario and its importance, including suitable teaching & learning approach and assessment. Moreover, concept of learning taxonomies (model that represents grouping of observed learning outcomes) should be made clear for EP instructors, industry mentors and students.

5. Delivery and assessment shall be aligned accordingly to ensure attainment of required competencies. Therefore, suitable teaching strategies and learning activities, including competency-based education and experiential learning should be used.

6. Projects, such as final year project, can be in various forms that are suitable and needed by the workplace, demonstrating the competencies in technology/technical profile. The project can be selected based on whether it can provide improvement/innovation and have practical impact on work process at the workplace and add value to the process.

7. Programmes offered through industry mode should emphasise formative assessments to provide feedback to learners. This is part of important practices in learners' competency developments.

2.2 Programme Design

Related TVET Sector Standard:

3.3 TVET provider shall have appropriate process of designing, implementing, evaluating and reviewing the assessment methods as displayed in Figure 2.0 (refer Standard).

Related Academic Sector Standard:

3.3 EP shall clearly describe the process of designing, implementing, evaluating and reviewing the assessment methods as displayed in Figure 2.0 (refer Standard).

8. Industry partners should be involved in designing, implementing, evaluating and reviewing the assessment methods. Examples of good practices in the process of designing, implementing, evaluating and reviewing the assessment methods are available in:
   i. Garis Panduan Reka Bentuk & Penyampaian Kurikulum TVET (JPT, 2021a)
   ii. Garis Panduan Pelaksanaan Mod Pengajian 2u2i (JPT, 2017)
   iii. Guidelines for Industrial Verification of Curriculum (MQA, 2024)
   iv. Guidelines to Good Practices: Work-Based Learning (MQA, 2016)

2.3 Stakeholders Involvement in Assessment Process

Related TVET Sector Standard:

3.3 The process shall involve respective internal and external stakeholders.

3.4 Programme assessment methods shall confirm that an individual can satisfactorily perform a specific skill or competency in accordance with standards set by the industry. Assessment of learning outcome cannot be adequately measured through traditional means such as paper examination. Instead, more emphasis should be given in finding suitable means to demonstrate learners' capacity to carry out assigned tasks competently in the workplace.

Related Academic Sector Standard:

3.3 The process shall involve the respective internal and external stakeholders.

9. Process of assessment includes planning, development and implementation of the assessment. Involvement of internal and external stakeholders in the assessment process is important to ensure alignment between theory and practice. For certain competencies, industry should provide criteria and benchmark for assessing the process and output of tasks completed by students. The criteria and benchmark are based on the minimum expectation of normal practice that is expected of a worker when performing the same task in the industry as well as those required by occupational standards or practices. Examples of evidence could be in

the form of minutes of meeting, feedback form, or verification on the criteria and benchmark of the students'/workers' performance.

CRITERIA 3

3. STUDENTS SELECTION AND SUPPORT SERVICES

3.1 Students Selection and Appeal

Related TVET Sector Standard:

4.0 Policies and procedures on student selection and appeals shall be established and made accessible to stakeholders.

Related Academic Sector Standard:

4.0 Policies and procedures on students' selection and appeals shall be established and made accessible to stakeholders.

1. EP with industry partner should establish policies and procedures on students' selection and appeals based on the needs of industry mode programme. Policy on students' selection and appeals may consider recognition of prior industry experience, and competency qualifications.

Related TVET Sector Standard:

4.1 The programme shall have minimum student entry requirement as follows: (refer standard).

Related Academic Sector Standard:

4.1 The minimum student entry requirement for technology programmes are as follows: (refer standard).

2. EP should consider input from industry partner to set entry requirements that are appropriate for the field and programme design. For example, EP can consider basic competency that is required to train at its industry partner company.

3. EP should recognise students' prior industry experience and competency. EP should allow and provide for student entrance via APEL.A. APEL.A is accreditation of prior experiential learning for purposes of admission/access into a programme of study under the various Malaysian Qualifications Framework (MQF) levels (MQA, 2023b).

3.2 Students Support Services

Related TVET Sector Standard:

4.0 For PA, TVET provider shall plan to provide access to student support services, both on campus and at workplace, including counselling, career advice, healthcare, and student welfare. In order to assist the students' life on campus and establish self-character development, facilities such as hostels, cafeteria, CCTV, sport and recreational centres, health centres, student centres and transportation, should be satisfactory.

For FA, TVET provider shall ensure access to student support services, both on campus and at the workplace.

Related Academic Sector Standard:

4.0 EP shall provide student support services, including counselling, career advice, health care access, extracurricular provisions for culture, sports and leisure, as well as other appropriate activities.

4. Agreement between EP and industry partner should address the following at the workplace:
   i. provisions for students include: training needs, student health, spiritual, psychological and social supports, processes and procedures for handling student disciplinary cases
   ii. mechanism for students to voice their grievances and seek resolution on training and non-training matters

3.3 Credit Transfer

Related TVET Sector Standard:

4.2 The programme shall have well-defined policies, regulations and processes of articulation practices, credit transfers and course exemptions. Policies, regulations and processes should be established and accessible to stakeholders.

Related Academic Sector Standard:

4.2 The programme shall have well-defined policies, regulations and processes of articulation practices, credit transfers and course

exemptions. Policies, regulations and processes should be established and accessible to stakeholders.

5. Students' prior industry experience and competencies should be considered for credit transfer via APEL.C and APEL.M. APEL.C is the accreditation of prior experiential learning for purposes of awarding credits for courses within a programme of study (MQA, 2020c). Meanwhile, APEL.M is the accreditation of prior experiential learning for purposes of obtaining the award of qualifications under various Malaysian Qualifications Framework (MQF) levels through the completion of unbundled or stand-alone micro-credentials (MQA, 2023b).

CRITERIA 4

4. TEACHING AND SUPPORT STAFF

4.1 Industry Mentor

Related TVET Sector Standard:

5.1.1 TVET provider shall appoint industry mentors to assist students with experiential learning in the industry.

TVET provider shall train the industry mentors to ensure quality teaching & learning activities are established.

Related Academic Sector Standard:

5.1.1 A suitable industry mentor should be appointed to assist students with experiential learning in the industry.

EP should train the industry mentors to ensure that learning takes place as well as to validate assessments for outcomes attainment.

1. Industry mentor is a selected employee of an industry partner who is qualified to mentor students at the workplace. Industry mentor is appointed by the EP based on recommendation from industry. Qualification requirements of industry mentor who are involved in teaching & learning activities is stated in related section of TVET Sector Standard. Industry mentors who do not fulfil the minimum/specified qualification but possess more than 5 years of accumulated related industrial experience may be considered.

2. Industry mentors should have necessary mentoring knowledge and experience through structured training conducted internally or by external parties. EP may acknowledge and recognise candidate's related experience, knowledge from previously enrolled courses, peer review and others. This is to ensure that delivery and assessment methods carried out by industry mentors are aligned with learning outcomes.

3. Roles and responsibilities of industry mentors should include, but not limited to the following:

i. provide training and development to students according to specific programme/course curriculum to meet students' learning outcomes
ii. establish positive relationships with students; guiding, mentoring and supporting students
iii. provide problem solving and follow-up activities to facilitate on-going business and industry participation
iv. assist in developing teaching & learning material, including assessment rubrics
v. ensure safety and health provisions are being adhered at the workplace as per required by legislation
vi. monitor and assess students' progress and attainment
vii. maintain regular communication and report any concerns observed to teaching instructor or coordinator to ensure smooth implementation of experiential learning in the industry
viii. assist instructor and coordinator in diagnosing curricular weaknesses through interim assessment
ix. participate in coaching training and professional development

4. EP with industry partner should ensure that a sufficient number of qualified and experienced industry mentors are appointed.

5. EP together with industry partner should develop a mechanism to ensure effective mentoring.

4.2 Professional Qualifications

Related TVET Sector Standard:

5.1.2 At least one teaching staff of the programme shall be a Ts. or Tc. If this is not met, TVET provider shall show effort towards complying with these criteria.

Related Academic Sector Standard:

5.1.2 At least one teaching staff of the programme must be a Professional Technologist (Ts.) or Certified Technician (Tc.). If this is not met, EP shall show effort towards complying with these criteria.

6. EP with industry partner should ensure that industry mentors gain the necessary knowledge and industrial experience to achieve professional

status as a Professional Technologist or Certified Technician under Malaysia Board of Technologists.

4.3 Industry Activities Engagement

Related TVET Sector Standard:

5.1.3 TVET provider shall ensure teaching staff keep abreast with latest practices by accumulating at least one-month industrial activities in every two years.

Related Academic Sector Standard:

5.1.3 All academic staff shall have appropriate competency for teaching practical–oriented courses within the programme. Upskilling/ reskilling programmes in relevant fields shall be established to continuously improve the teaching staff's competency.

7. EP and industry partner shall ensure that teaching staff keep abreast of the latest practices by engaging in at least one-month of industrial activities in every 2 years. Industrial activities can be carried out in the form of training, research, consultancy, services, or collaboration with industry. The activities should be relevant to competencies in technology/technical profiles in the field of study. These activities can be accumulated within a two-year period.

Related TVET Sector Standard:

5.4 TVET provider shall provide a clear guideline for encouraging industry engagement amongst the teaching and technical support staff. TVET provider shall have a continuous industry engagement to ensure teaching & learning activities are industry relevant.

Related Academic Sector Standard:

5.4 EP shall provide a clear guideline for encouraging industry engagement amongst the teaching and technical support staff. EP shall have a continuous industry engagement to ensure teaching & learning activities are industry relevant.

8. EP shall provide a clear guideline to encourage industry engagement amongst teaching and technical support staff. In order to ensure that teaching & learning activities are industry relevant, the guideline should

cover frequency of engagement and acquisition of latest industrial practices.

4.4 Evaluation of Teaching & Learning

Related TVET Sector Standard:

5.5 TVET provider shall have a mechanism for students to evaluate the quality of teaching & learning activities.

Related Academic Sector Standard:

5.5 EP shall have a mechanism for students to evaluate the quality of teaching & learning activities.

9. EP and industry partner shall have mechanisms for students to evaluate the quality of teaching & learning activities carried out by both teaching staff and industry mentor.

CRITERIA 5

5. EDUCATIONAL RESOURCES

5.1 Educational Resources

Related TVET Sector Standard:

6.0 Educational resource refers to physical facilities and financial resources to support the delivery of programme and technology/ technical services. The programme shall have sufficient and appropriate educational resources to ensure its effective delivery.

Related Academic Sector Standard:

6.0 Educational resource refers to physical, research and development facilities, as well as financial resources to support the delivery of programme. The programme shall have sufficient and appropriate educational resources to ensure its effective delivery.

1. Educational resources are defined as resources for specific competency in technology/technical profiles that support programme and curriculum delivery. These supports include enable student-instructor engagement; assist student development and learning; and stimulate teaching, learning, and training processes. Educational resources include but not limited to classroom, laboratory, equipment, library, workshop, software, and working space.

2. Sufficient and appropriate educational resources are defined as educational resources that are able to demonstrate, deliver, train and are useful for teaching & learning purposes. In addition, the resources should have clear purposes, such as engages knowledge-experience-skills, supports learning, working and assessment activities, and provides competency in technology/technical profiles.

Related TVET Sector Standard:

6.0 TVET provider shall ensure that safety factors are considered in the educational resources planning and operation.

TVET providers shall also ensure that environmental, sustainability, cultural, professional, ethical and legal factors are considered in the planning and operation of educational resources.

Related Academic Sector Standard:

6.0 It is also compulsory that the safety, environmental, sustainability, cultural, professional, ethical and legal factors are considered in the planning and operation of educational resources.

3. EP and industry partner shall demonstrate compliance to safety regulations on all necessary facilities and working environments. EP is responsible to communicate with industry partner and get the necessary evidence, such as standard operating procedures, safety-related certifications, amongst others.

4. EP and industry partner shall consider environmental, sustainability, cultural, professional, ethical and legal factors, such as related standards and requirements, government policies, national agenda, and others. EP is responsible for obtaining necessary evidence from industry partner to demonstrate that the industry has included these factors in their planning and operation of educational resources. Evidence could be in the form of workplace code of practice and guidelines and others.

5.2 Physical Educational Resources

Related TVET Sector Standard:

6.1 The programme shall ensure the quality, availability, relevancy and utilisation of facility.

Related Academic Sector Standard:

6.1 The programme shall ensure the quality, availability, relevancy and utilisation of facility.

5. Facility quality, availability and utilisation can be measured through a periodically defined assessment, for example, benchmarking, external

assessors report, market needs analysis, calibrations, health and safety assessment, amongst others.

6. Facility relevancy describes that the facilities and its associated staff/workers are constructively designed and aligned to the expected technology/technical competency and skills. Any recognition from industries on the facilities or the educational resources can be provided to support the facility relevancy to the competency in technology/technical profiles.

Related TVET Sector Standard:

6.1 Adequate and suitable experimental and practical facilities shall be accessible since technology programmes acquire substantial practice-oriented learning.

Related Academic Sector Standard:

6.1 Adequate and suitable experimental and practical facilities shall be accessible since technology programmes acquire substantial practice-oriented learning.

7. Adequate, suitable experimental and practical facilities are facilities that are able to demonstrate capability of providing and nurturing the competency in technology/technical profiles.

8. Adequacy of facilities can be demonstrated through justifiable ratio of student to equipment, as well as degree of access to equipment. Suitability can be demonstrated through alignment between the outcomes and assessment to related competency in technology/technical profiles.

5.3 Technology/Technical Services and Innovation

Related TVET Sector Standard:

6.2 TVET provider shall have adequate facilities and resources to encourage staff in providing technology/technical services to community and industry.

Related Academic Sector Standard:

6.2 For EP offering Bachelor programmes, shall have adequate research laboratories and equipment relevant to the learning activities which

include access to the latest technical publications, dedicated laboratories, and workshops.

The programme will ensure that research and development are parts of the learning ecosystem.

For EP offering Advanced Diploma programmes or lower, research and development facilities are encouraged and could be geared towards cultivating research and innovation culture.

9. Adequate facilities and resources should be made available to support research and development, and/or industry or community technology/technical services, to the extent that the activities can be part of learning ecosystem. Facilities in industries are described as facilities that are utilised and related to the programme. For example, equipment and machines used in industrial services can also be used in teaching & learning activities.

10. EP should be able to provide and simulate actual industries environment, facilities, and resources related to competencies in technology/technical profiles.

5.4 Financial Resources

Related TVET Sector Standard:

6.3 The programme shall demonstrate financial viability and sustainability for the operation and maintenance of programme.

Related Academic Sector Standard:

6.3 The programme shall demonstrate the systematic procedure to ensure that its financial resources are sufficient and efficiently managed.

11. Financial viability is important to sustain the operation and maintenance of an industry mode programme. Financial viability and sustainability can be demonstrated through periodically organised programme reviews, audited financial reports, demonstration of internal governance compliance, risk management and analysis, and economic review and trends.

CRITERIA 6

6. PROGRAMME MANAGEMENT

6.1 Programme Governance

Related TVET Sector Standard:

7.1 Governance refers to structure, policies and procedures designed to ensure accountability, transparency, responsiveness, stability, equity and inclusiveness, empowerment and broad-based participation.

The programme shall have a governance structure supported by staff or committees that include industry partners to perform various functions. Policies and procedures shall be established, published, and implemented.

Related Academic Sector Standard:

7.1 Governance refers to structure, policies and procedures designed to ensure accountability, transparency, responsiveness, stability, equity and inclusiveness, empowerment, and broad-based participation.

The programme shall have a governance structure supported by staff or committees performing various functions. Policies and procedures shall be established, published and implemented.

1. Evidence of having governance structure in place can be in the form of organisation structure/terms of reference (TOR), meeting minutes, policies and procedures on related matters in programme management and deliveries.

2. All procedures must comply with any current policies, standards or any related regulations that are necessary and supports programme delivery and assessment of competency in technology/technical profiles. The procedures should be published and easily accessible, wherever applicable and necessary.

6.2 Programme Leadership

Related TVET Sector Standard:

7.2 TVET provider shall appoint qualified and dedicated leaders in related fields to provide directions and manage resources to ensure the programme stays aligned with its mission, identity, and the stakeholders' requirements.

Related Academic Sector Standard:

7.2 EP shall appoint qualified and dedicated leaders from related fields to provide directions and manage resources to ensure the programme remains aligned with its mission, identity, and stakeholders' requirements.

3. EP should provide evidence on related processes, criteria and necessary documentation for the appointment of leaders emphasising in the requirement of fulfiling the mission and identity of industry mode programme. This includes leadership mentoring plans for a sustainable leadership practice and fulfiling criteria of having knowledge on learning organisation principles, such as 'systems thinking' and 'having shared-vision'. Learning organisation is defined as any organisation (for example, industry partner company) that facilitates the learning of its members and continuously transform itself.

6.3 Records Management

Related TVET Sector Standard:

7.3 Records management refers to a set of activities for efficient monitoring of the creation, distribution, usage, maintenance, and disposal of recorded information declared as documentation of the programme activities and transactions.

TVET provider shall maintain students' records related to their admission, performance, completion, and graduation as well as preserve them for future reference. TVET provider shall maintain a proper record of staff academic qualification, appointment, training, appraisal and other related documents.

Related Academic Sector Standard:

7.3 Records management refers to a set of activities for efficient monitoring of the creation, distribution, usage, maintenance, and disposal of recorded information declared as documentation of the programme activities and transactions.

EP shall maintain the students' records related to their admission, performance, completion, and graduation and preserve them for future reference. EP shall maintain a proper record of staff academic qualification, appointment, training, appraisal and other related documents.

4. EP and industry partner should consider confidentiality, review, circulation and disposal of records when establishing procedures for maintaining records for students and staff. This includes consideration on process of handing over of sensitive information from industry partner to EP, which could be in the form of students' assessment documents, classified student reports, audit reports and others.

5. EP and industry partner should have a proper documentation procedure as to ensure the performance of student is well documented.

CRITERIA 7

7. QUALITY MANAGEMENT SYSTEM

7.1 Quality Assurance

Related TVET Sector Standard:

8.1 TVET provider shall establish structure and processes to manage the programme quality assurance.

Related Academic Sector Standard:

8.1.1 EP shall establish structure and processes to manage the programme quality assurance.

1. EP should demonstrate functional structure, policies, processes and mechanisms to manage the programme quality assurance with involvement from industry partner. For example, with input from industry partner, procedures such as the handling of classified information can be established.

7.2 Stakeholders' Engagement in Programme Review

Related TVET Sector Standard:

8.2 Feedback from stakeholders, including students, alumni, employers, professional bodies, teaching staff, shall be obtained to continuously improve the programme quality.

Related Academic Sector Standard:

8.2 Feedback from stakeholders, including students, alumni, employers, professional bodies, teaching staff, and informed citizens, shall be obtained to continuously improve the programme quality.

2. Feedback from stakeholders may include input from students' representative at the industry or any specific appointed individual, who can represent the student, human resource representative, workers union, industry mentor, amongst others.

7.3 Monitoring, Review and Evaluation

Related TVET Sector Standard:

8.3 Programmes shall continually be monitored, reviewed, and evaluated, including TVET provider's governance, institutional processes, curriculum structure, teaching & learning activities, as well as student and graduate outcomes attainment.

Related Academic Sector Standard:

8.3 Programmes shall continually be monitored, reviewed and evaluated, including EP's governance, institutional processes, curriculum structure, teaching & learning activities, and students and graduates' outcomes attainment.

3. Industry partner should be made aware of students' attainment for continual quality improvement purposes and be involved in the programme continuous improvement activities.

7.4 Benchmarking

Related TVET Sector Standard:

8.4 The programme shall conduct benchmarking in searching, learning, adapting, and implementing the best practices with other reputable institutions to ensure a comparable programme quality.

Related Academic Sector Standard:

8.4 EP should conduct benchmarking in searching, learning, adapting, and implementing the best practices with other reputable institutions to ensure a comparable quality of education.

4. EP should periodically conduct benchmarking process and documentation based on criteria described in guidelines. Benchmarking should consider related matters, for example, tools and equipment, educational resources, technology/technical competency, curriculum structure and assessment method.

5. Reputable institution is defined as education and training provider/ institution that has excellent service or outstanding performance especially in related competency in technology/technical profiles.

7.5 Continual Quality Improvement

Related TVET Sector Standard:

8.5 The programme shall regularly and systematically be assessed and evaluated for CQI.

Related Academic Sector Standard:

8.5 The programme shall regularly and systematically be assessed and evaluated for continual improvement.

6. A systematic assessment on the programme can be organised based on the elements of constructive alignment, which covers the exercise of PEO, PLO, and CLO reviews and the respective attainment which supports competencies of technology/technical profiles.

7. The assessment also includes any assessments which support the programme, such as on staff, educational resources, governance and quality management.

8. The procedure for periodical assessment should be established, complied with and sufficiently documented.

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