



**Engineering Accreditation Council
Engineering Technology Accreditation Council
BOARD OF ENGINEERS MALAYSIA**

GUIDELINES NO. 005

**GUIDING PRINCIPLES ON TEACHING-LEARNING AND ASSESSMENT
IMPLEMENTATION DURING COVID-19 PANDEMIC**

This Guideline is a revised version of Guidelines No. 005 (Rev. No.: 0, Date: 31.3.2020)

1.0 INTRODUCTION

These guiding principles are intended to assist all IHLs conducting EAC and ETAC accredited programmes in maintaining the education quality standards during the COVID-19 pandemic while ensuring compliance to the relevant Standards, in particular: -

- i. Engineering Programme Accreditation Standard 2020,
- ii. Engineering Technology Programme Accreditation Standard 2020, and
- iii. Engineering Technician Education Programme Accreditation Standard 2020.

2.0 GENERAL

The accreditation process focuses on the outcomes and the internal systems developed by the IHLs to ensure that the graduates are adequately prepared to enter the engineering/engineering technology/engineering technician profession. In view of the current situation, the purpose of accreditation shall not be compromised. Suggestions are hereby given to serve the said intention.

- 2.1 All programmes are to ensure the attainment of the 12 Programme Outcomes (POs) as stipulated in the Standards. All alternative assessments must be designed or formulated based on the intended learning outcomes. Scenario or case study types of questions could be used as an alternative to the Psychomotor and Affective POs during the COVID-19 pandemic.
- 2.2 All programmes are expected to implement substantial equivalent assessments to the pre-pandemic assessments. Continuous assessments implemented could be continued with take-home exams and assignments. The programme is expected to undertake precautionary measures in handling integrity issues.

2.3 All programmes must ensure all students at least have a **minimum** access to all e-learning (synchronous or asynchronous) and online assessments, if the online teaching-learning and assessment (TLA) are to be implemented.

- The use of suitable TLA delivery platforms such as MS Teams, Zoom and Google Classroom, could further be complemented with the organised and structured use of Social Media platform such as WhatsApp Chat Group, Telegram and Facebook to keep students connected for any academic related enquiries, group work, discussions or others to achieve the intended academic TLA goal(s).

3.0 TEACHING-LEARNING AND ASSESSMENT IMPLEMENTATION

The teaching-learning and assessment methods shall be appropriate to, consistent with, and support the attainment or achievement of the POs.

For online examination, extra time may be allocated to students to account for the possible unfamiliarity use of the TLA platform or time spent to download and upload assessment documents.

- Continuous assessments may include case study, project-based learning and problem-based learning. Assessments include high taxonomy levels questions where answers are not obtainable directly from textbooks or readily available from the internet to address the characteristics of complex/broadly defined/well defined engineering problems.

3.1 Final Year Project (FYP)

All FYP need to continue as per the relevant clauses in the Standards. (Clause 6.3 Criterion 3: Academic Curriculum, EAC Standard 2020, and Clause 8.3 Criterion 3: Academic Curriculum, Engineering Technology and Engineering Technician Education Standards 2020).

For EAC accredited engineering programmes, FYP can be conducted using computer-based simulation and presenting literature critique.

For engineering technology (Degree level) and engineering technician (Diploma level) programmes under ETAC, FYP can utilise appropriate modern technology, emphasising the need to make use of computers and multimedia technology.

FYP focusing on experiments and laboratory work may still be carried out with the possibility of extension of time to complete.

Where access to laboratories and campus is necessary, IHLs must strictly comply with MKN/MOH SOPs.

3.2 Industrial Training (IT)

All students who are undergoing IT and affected due to any forms of Movement Control Order (MCO), can continue the IT exposure after the completion of the final semester.

The IHLs may consider alternatives to IT which could give substantial equivalent outcomes such as:

- in-house repair and maintenance, properly supervised by the qualified person, and
- virtual industrial attachment supervised by industry players and/or complemented by guest lectures, sharing of practical experiences and/or demonstration by industry experts.

For such alternative, a gap analysis is required to ensure that the intended outcomes are attained.

This is applicable to cohorts affected by COVID-19.

3.3 Courses with Extensive Laboratory Work (Lab)

Courses where laboratory experiments cannot be implemented during MCO can be replaced later when the situation permits.

If it is deemed safe and feasible, special arrangement can be made by IHLs to post/transport components, materials, and/or tools required by students to carry out the experiments at their own premises.

Other possible mode for consideration is via video of the actual demonstration of experiments by instructors' either synchronously or asynchronously such that students can access the video to observe the experiments and subsequently utilise the experimental data to carry out the required analysis to produce a final laboratory report or presentation for assessment. In addition, it is worth considering to reinforce learning via e-lab or simulation-based laboratory experiments.

3.4 Integrated Design Project (IDP) / Design Project (DP)

For EAC accredited engineering programmes, all IDP shall involve complex engineering problems and design systems, components or processes integrating (culminating) core areas and meeting specific needs, as per clause 6.3 Criterion 3: Academic Curriculum, EAC Standard 2020. The teamwork effort and complex engineering activity characteristics should continue accordingly. The scope may be considered complete at the stage of producing prototype design and equivalent. Computer-based simulation and presentation of critical design problem solving are acceptable.

For engineering technology (Degree level) and engineering technician (Diploma level) programmes under ETAC, all DP shall include broadly-defined applied engineering problems/well defined applied engineering problems; and design systems, components or processes integrating core areas and meeting specified needs, as per Clause 8.3 Criterion 3: Academic Curriculum, Engineering Technology and Engineering Technician Education Standards 2020.

Where access to laboratories and campus is necessary, IHLs must strictly comply with MKN/MOH SOPs.

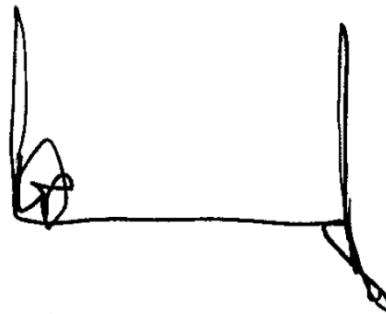
3.5 Final Examinations (FE)

All courses that have FE may use any available assessment method viable to the programme including on-line. Precautionary measures in handling integrity issues must be ensured. Programmes need to show evidence on the attainment of all the 12 POs with a systematic Quality Management System.

4.0 VALIDITY

- 4.1 The above guiding principles are applicable to all accredited programmes under EAC and ETAC of BEM with effect from the stipulated date until the COVID-19 pandemic is under adequate control by the Government of Malaysia.

[Approved by Board on 5th June 2021]



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