



PEC Policy Guidelines for Online Teaching-Learning and Assessment Implementation during COVID-19 Pandemic

1. Introduction

EAB-PEC has formulated policy guidelines to facilitate HEIs for online readiness and blended/ hybrid learning in engineering programs during the outbreak of COVID-19 pandemic. These guiding principles are intended to assist all PEC accredited programs in maintaining the education quality standards and be called as an interim PEC guidelines, while ensuring compliance to the following documents in general, keeping consistency with HEC Policy Guidance Series on COVID-19 No. 4, dated 28 March 2020, in particular:-

- i. Accreditation Manual 2014
- ii. PEC Regulations
- iii. This Interim Policy Guidelines as approved by all relevant forums of PEC

2. General Guidelines

As accreditation process focuses on the Outcomes and the internal systems/ mechanism developed by the HEIs to ensure that the graduates are adequately prepared to enter the engineering profession by attaining 12 Graduate Attributes (GAs/PLOs) covering all three domains. However, the mode of demonstrating the mechanism for such attainments by HEIs, adopting any suitable secured online synchronous/ asynchronous, LMS hybrid/ blended mode of Teaching-Learning and Assessment (TLA) system shall be considered. For this purpose, HEIs opting for a well-prepared mechanism during pandemic situation shall have to satisfy the essential requirements as elaborated in the PEC Accreditation Manual-2014, however, the spirit and purpose of accreditation shall not be compromised.

Suggestions in this regard, are hereby given to serve the said intention to qualify the accreditation standards:

- i. All programs are to ensure the attainment of the 12 Program Learning Outcomes (PLOs) as stipulated in the Accreditation Manual-2014. All alternative TLA mechanisms must be designed or formulated based on the intended Learning Outcomes to demonstrate by the respective program along-with record of evidences. Scenarios or case study types of questions/assignments/PBL/CEPs including Open Book exams through specially designed questionnaire by the concerned faculty/instructor could be used as an alternative assessment (cognitive domain) to ensure the desired Taxonomy as per set CLOs/PLOs for the courses offered during the pandemic. The overall teaching-learning and assessment methods shall be appropriate to, consistent with, and support the attainment or achievement of the PLOs.

- ii. For Psychomotor domain, the concept of learning via e-labs or simulation-based laboratory experiments may be considered only. However, labs/ experiments which can't be implemented online may be offered on campus after resumption of normal academic session in an accelerated teaching including final exam ensuring attainment of program and course learning outcomes. Accordingly necessary arrangements are required to revise the existing practice of course offerings to include less lab-intensive courses from the current/succeeding semester(s). Similarly, activities related to Affective Domain may be revised/ re-shuffled during the COVID19 pandemic.
- iii. HEIs are advised that all courses should be planned and implement with a clear mechanism of substantial equivalent for the partial segment of assessments to the current direct assessments in face-to-face TLA system. Continuous assessments implemented during the on-going spring semester could be continued with assignments and Take-home exams (system controlled MCQs, Open book OHTs, quizzes, PBLs, simulation-based e-labs including other demonstrated type of labs as approved by HEI statutory committee ie. Academic Council and BoS in-line with this interim PEC guidelines) covering part of online assessments (upto maximum of 50%), however Final Term Exam of 40%-50% weightages (including the hardcore labs) be conducted at normalization of the pandemic crisis. Accordingly a blended/ hybrid mode of TLA is therefore proposed by adopting a condensed/ accelerated teaching of period to be decided by the respective HEI. The whole process in an online program delivery and assessment is desired to undertake precautionary measures in handling integrity issues at both ends of students and faculty by evolving suitable monitoring and evaluation system. It is expected that programs show evidence on the attainment of all the 12 Program Learning Outcomes with a systematic Quality Management System (QMS).
- iv. All programs must ensure a minimum level of accessibility to all students in their deployed e-learning (synchronous or asynchronous) process and online limited/ partial assessments as mentioned above, if the online TLA is opted to be implemented by an HEI.

The HEIs getting ready to opt for tested and secured online TLA system for the limited segment of engineering programs, which might be different in kind with other professional disciplines, must submit their comprehensive plans of delivery and assessment to PEC EAB, after approval of their respective statutory bodies, demonstrating necessary mapping of the essential requirements with these given guidelines before starting this new paradigm. Accordingly HEIs are required to constitute Coordinating Committees for necessary M&E and ensuring quality standards for various attributes elaborated in this interim policy. The universities may also consider implementation of policy for affiliated institutes ensuring quality and online readiness requirement.

3. Essential Requirements

In addition to the above general policy guidelines, the following shall be observed by the HEIs opting online TLA system during the COVID19 pandemic only.

- i. IT infrastructure: The HEIs must have basic secured LMS, Bandwidth and IT Support to enable satisfactory and sustained delivery of online classes while maintain QA processes including time-tables, class held status, students' participation, availability of course material in real time as well as in recorded fashion (synchronous/ asynchronous mode).
- ii. Class size: Online class size should not be greater than 100 for engineering and 240 for non-engineering courses. This flexibility is extended in order to accommodate appropriate number of students/sections in parallel sessions which will require sufficient bandwidth.
- iii. Content Delivery: Faculty must be trained and assessed by a senior committee formed within the HEI to deliver courses online properly including handling of basic IT principles, for example, audio, video and sharing of screens and materials.
- iv. Attendance: HEIs are responsible to introduce suitable monitoring & feedback evaluation mechanism to record/ log students' participation and time spent on course platforms. This may include off-line listening to recorded lectures and timely addressing assignments etc.
- v. Assessments and Quizzes: Assessments, number of quizzes and type of assignments/PBLs/CEPs must be innovative enough to cover CLOs to attain respective PLOs of the courses appropriately. They should be assessed on time and the assessments must be shared with students online. The results and evidence must be maintained by the HEIs for record (*Reference: General Guidelines, para 2(iii)*).
- vi. Final Year Design/Capstone Project (FYDP): All FYDPs need to continue as per the relevant clauses in the PEC Accreditation Manual-2014. For PEC accredited engineering programs, capstone projects can be conducted/considered using computer-based simulation, presenting literature critiques or system designs etc. utilizing appropriate modern tool usage and technologies.

Ongoing capstone projects at the final semester and focusing on experimental projects can still be carried out with possibility of extension of time to complete. Whilst ongoing capstone projects at the initiation stage which focused on experimental projects are encouraged to realign as simulation work or computer-based technologies and system designs etc. relevant to the offered engineering discipline

- vii. Complex Engineering Problems/ Class Projects: All semesters involving Complex Engineering Problems and Activities, class projects/ OELs in core areas/ breadth and depth courses and meeting specific needs of their already mapping and

designed CLOs/PLOs as per the academic curriculum, the teamwork efforts of student groups with concerned supervisor should continue accordingly. The scope may be considered complete to the extent of producing prototyping design and equivalent instead of the real prototype model for testing/calibration. Computer-based simulation and presentation of critical design problem solving are acceptable in all such culminating projects.

- viii. Grading: In order to cater for the circumstances that the partial assessments through assignments, quizzes, OHTs are conducted in virtual environment, it is therefore, proposed that relative grading system within class cohort may be adopted to avoid any discrepancy for those students who are not well versed with this new paradigm of implementing TLA for the time being.
- ix. Quality Assurance: HEIs will be responsible to record all evidence of class delivery, assignments and quizzes of all online courses, as per PEC course instructions of Accreditation Manual. All approvals of the conduct of online classes will be subjected to a confirmation of the HEI Online Coordination/Quality Committee responsible for training and assessment of the course instructor. Evidence to this effect will also be made available to PEC as and when required. The entire QMS/LMS be shared with PEC as advised in General Guideline above after internal review mechanism by the Online Coordination/Quality Committee.
- x. Practical Labs: Lab-intensive courses where laboratory experiments cannot be implemented online during lockdown period, they can be replaced later when the situation permits/normalizes to demonstrate attainment of psychomotor domain. Universities may defer practical component of such hardcore labs courses in-line with general guidelines given above (*Reference: General Guidelines, para 2(ii)*).
- xi. Acceptability and Accessibility: Feedback of students for a guided response to motivate them for online TLA be exercised to a reasonable sample of enrolled students in a program. Students are more conscious about well-preparedness/delivery mechanism to be ensured from the internal QMS/LMS system and capacity building of concerned faculty to respond students' questions and interactive engagement.

In order to ensure student accessibility, all lectures and course material must be available online in recorded format as well to the students (synchronous/asynchronous mode). Still, if a student wants to withdraw based on inaccessibility or any other inability, he may be allowed to do so, without having any adverse impact on the promotion of the student, provided a minimum of 2.0/4.0 CGPA is maintained. In such a case, the course(s) will be treated as "frozen" and no fee shall be charged by the HEI for re-enrolment at a later stage for the students who are interrupted in an ongoing semester.

Further, the National Skills Building Initiative (NSBI) was discussed in 96th EAB and it was decided that PEC will facilitate the necessary arrangements for those HEIs desiring to use online platforms such as Coursera, MOOCs, EdX for online education and CPD training programs. The universities should also take necessary measures to ensure integrity of online education and assessment system.

Re-Accreditation: SARs/ Compliance submitted by HEIs will be evaluated in two phases for the purpose of granting provisional accreditation followed by a normal re-accreditation mode elaborated as under:

- a) **Phase-I:** Provisional grant of accreditation for graduating batch only (in the same level-I/II) through preliminary desk review by EAD based on its previous accreditation history and general compliance level of the program provided no deficiency is reported.
- b) **Phase-II:** Execution of normal accreditation in physical mode after normalization of the lockdown situation as per accreditation Manual guidelines.

PEC EAD has completed work on automation for accreditation process. The software is in testing mode and necessary user guidelines are in development phase for the training of HEIs & evaluators. Accordingly, HEIs will be required to submit SAR and Compliance through online portal available within the dashboard of the software for this year deadline of October 2020.

4. VALIDITY

The above General Guidelines and Essential Requirements are the guiding principles to be applicable to all accredited engineering programs of PEC with effect from the stipulated date/schedule for an HEI opting paradigm of online TLA system in intimation to PEC/HEC until the COVID-19 pandemic is under adequate control by the respective Provincial and Federal Government of Pakistan.