



Pakistan Engineering Council Program Evaluation Guidelines for PEVs

- 1) For all accreditation criteria, the findings shall be recorded under 'Compliance' column as: 'Y' for satisfactory, 'C' for Concern, 'W' for Weakness, 'D' for Deficiency or 'OFI' for Opportunity for Improvement.
- 2) In case of 'C', 'W' or 'D', justification must be provided under '*Observation and Remarks*' column.

Color Legend Used:

	Item marked with "Yellow" color means Deficiency for the main criteria
	Item marked with "Green" color means Weakness for the main criteria
	Item marked with "Gray" color means Concern for the main criteria

Sr. No.	Criteria	Observations and Remarks For Non-Compliance
	Criterion-1: Program Educational Objectives (PEOs)	
i	Well-defined and published Institute Vision and Mission	D: Institute Vision and mission are not defined. W: defined somehow but not published C: not very well published as public document
ii	PEOs are defined, consistent with the Vision / Mission, and well publicized.	D: PEOs are not defined. W: Reasonably defined but in total disregard to V&M C: 1) There are some issues with PEOs' consistency with Vision/Mission ;OR 2) The PEOs are too narrow or too broad; OR 3)Not very well published as public documents
iii	Involvement of stakeholders in formulation / review of PEOs.	D: System does not have any mechanism for involvement of stakeholders W: Process partially defined AND no formal evidence showing involvement of stakeholders so far C: informal involvement of stakeholders seen
iv	A process in place to evaluate the attainment of PEOs.	D: No process defined W: Process is defined but assessment tools/KPIs are non-existent C:1) Assessment tools/KPIs defined but are inadequate; OR 2) Evaluation mechanism and allocation of responsibilities of entities are not clear / confusing
v	Evaluation results used for continual improvement of the program	D: CQI process at PEO level is not defined W: 1) Assessment data gathered , but no analysis and evaluation carried out ; OR 2)Corrective actions based on evaluation results are not identified and no implementation plan worked out C: Corrective actions are not implemented OR only partially implemented.

Sr. No.	Criteria	Observations and Remarks For Non-Compliance
	Criterion-2: Program Learning Outcomes (PLOs)	
i	PLOs are well-defined and publicized.	D: Not defined at all W: Defined but not approved from the concerned Statutory Bodies; OR Not publicized C: Insufficient justification of fulfilment of graduate attributes.
ii	PLOs are appropriately linked to PEOs	D: Not linked W: Linked but not supportive to all PEOs C: Some key points in PEOs are not addressed in PLOs
iii	PLOs encompass all the required Graduate Attributes as defined in EAB Accreditation Manual	D: Do not encompass the PEC GAs in totality W: partially encompass C:
iv	Mapping of Courses to PLOs	D: No mapping is given. W: Mapping is there but all PLOs are not adequately supported. C: Mapping is not covering all domains of learning.
v	Teaching-learning and assessment methods appropriate and supportive to the attainment of PLOs	D: Teaching/ assessment methods not appropriate/ designed to attainment of PLOs. W: Partially supportive. C: Assessment methodologies both direct and indirect are not appropriately applied.
vi	Quality of assessment process to evaluate the attainment of PLOs at student as well as cohort levels through well-defined Key Performance Indicators (KPIs).	D: KPIs are not defined. W: KPIs are not well defined or assessment is not carried out at the appropriate taxonomy level. C: KPIs are well defined but not addressing student /cohort level.
vii	Process in place by which assessment results are applied to further refine the assessment mechanism and/or redefine the program outcomes, thus leading to continuous improvement of the program	D: CQI process for PLOs is not defined. W: 1) CQI process defined but not institutionalized; OR 2) No analysis carried out C: Evaluation done but no corrective actions taken.

Sr. No.	Criteria	Observations and Remarks For Non-Compliance
	Criterion-3: Curriculum and Learning Process	
i	Curriculum covers required breadth, depth and distribution of the program courses according to program specific (HEC/PEC NCRC curriculum) guidelines.	<p>D: Curriculum deviates significantly from HEC/PEC curriculum guidelines or essential breadth and depth courses are missing from the curriculum</p> <p>W: 1) The course files reveal that though the program does include the necessary Depth & Breadth courses in its curriculum, but in actual practice, the coverage of Depth contents is very shallow; OR 2) Coverage of Design aspects / projects is relatively on the lower side.</p> <p>C: Coverage in a few breadth courses is not adequate.</p>
ii	Curriculum provides balanced coverage of engineering and non-engineering contents in-line with National Engineering Qualifications Framework (NEQF)	<p>D: Curriculum deviates significantly from NEQF;</p> <p>W: Curriculum broadly conforms to NEQF but lacks certain important courses in more than one domains (i.e. Math, Natural Sciences, Humanities, Management, Engineering);</p> <p>C: Curriculum broadly conforms to NEQF but lacks certain important courses in any one domain</p>
iii	Adequate exposure to Complex Engineering Problems (CEPs) and Activities	<p>D: No exposure</p> <p>W: 1) Limited exposure to CEPs in courses and labs; OR 2) Limited exposure to CEPs in FYPs.</p> <p>C: Reasonable exposure in FYPs but not adequately covered in some courses/labs</p>
iv	Availability of program specific well equipped labs to supplement theoretical knowledge/class room learning.	<p>D: Essential Labs are missing or seriously deficient in the required lab equipment.</p> <p>W: Most of the labs are in place, some are deficient in equipment or numbers of workstations in most of the labs are less than reasonable considering the student strength.</p> <p>C: All the required labs are there, a few have limited number of workstations hindering adequate hand-on exposure</p>
v	Lab work supporting the attainment of the required skills and its assessment mechanism	<p>D: No assessment mechanism exists to measure lab skills. No concept of assessment in Psychomotor and Affective domains.</p> <p>W: Students are offered limited hands-on opportunity to develop the required skills; assessment mechanism is mostly not appropriate.</p> <p>C: 1) One or two labs lack the focus on developing relevant skills; OR 2) The assessment mechanism lacks rigor or appropriateness</p>
vi	CLOs defined for all courses with appropriate Learning-Levels, e.g. the ones defined in Bloom's Taxonomy, and their mapping to relevant PLOs	<p>D: CLOs not defined for most of the courses.</p> <p>W: CLOs not defined for some courses, inappropriate Taxonomy level and their mapping to relevant PLOs.</p> <p>C: CLOs' action verbs not commensurate with taxonomy levels indicated, lacking clarity in mapping to PLOs.</p>
vii	Benchmarking of curriculum carried out with National / International best practices – Washington Accord (WA) recognized programs	<p>D: NO benchmarking carried out</p> <p>W: Benchmarking carried out but not in-line with best practices</p> <p>C: Benchmarking carried out only at broad domain level but not at course level and/or no analysis done.</p>

viii	Formal involvement of industry in curriculum development / revision	D: No involvement from industry W: Process in place but not regularly practiced C: Informal industry involvement at departmental level.
ix	Employment of other aspects of student learning such as tutorial system and seminar / workshops, etc. to enhance student learning, in addition to regular classroom interaction and lab experimentation	D: No employment of other aspects of student learning. W: Formal mechanism is there but not practiced. C: Some other aspects of student learning are practiced.
x	Exposure to cooperative learning through supervised internship program with formal feedback from the employer	D: No internship program in place. W: Only limited Internships are arranged, no feedback mechanism is there C: Internships are arranged, with some feedback but no analysis for CQI
xi	Sufficient opportunities to invoke intuitiveness and originality of thought through Problem Based Learning (PBL), Design Projects and Open-Ended labs.	D: No such opportunities exist W: Few instructors practice PBL and/or give design projects in courses but not formalized by the department. C: The formalized use of Design projects, Open-Ended labs and PBL is there but limited in number.
xii	Assessment of various learning outcomes (PLOs/CLOs) employing appropriate direct / indirect methods.	D: Inappropriate Assessment methods used for evaluation of CLOs/PLOs. W: Assessment in Cognitive domain usually appropriate but at times lacks rigor; OR Lacks assessment in any other domain. C: Use of inappropriate rubrics for Psychomotor and Affective domains.

Sr. No.	Criteria	Observation and Remarks For Non-Compliance
	Criterion-4: Students	
i	Admission Criteria meets / exceeds minimum eligibility criteria prescribed by PEC Regulations.	D: Not in compliance with PEC regulations. Y: In Compliance
ii	Annual intake is in-line with the maximum intake allowed by EAB for the program.	D: Not in compliance with PEC regulations. Y: In Compliance
iii	Well documented policy on transfer of students only from other accredited program restricting transfer of less than 50% of Cr Hrs required for the degree.	D: Students transferred from non-accredited programs; or student transfer allowed from accredited program but with more than 50% Cr. Hrs. transferred. W: No documented transfer policy C: Policy in place but not strictly adhered to.
iv	Efforts made to provide off-class academic counseling such as through engaging RAs/TAs/GAs holding scheduled tutorials, problem solving sessions etc. Regular office hours announced by faculty is the minimum expectation.	D: No regular office hours, and no efforts made to provide off-class counselling. W: Office hours not announced and limited tutorials. C: Office hours announced but not fully observed.

v	Availability of designated student counselors to advise / counsel students regarding academic / career matters and provide assistance in managing their health, financial, stress, emotional and spiritual problems.	D: No provision of student counselling available. W: Limited provision of student counselling. C: Student counselling effective in limited areas.
vi	Manageable class-size (around 40-50 for theory classes) and lab groups (2-3 students per workstation for hands-on type experiments, larger groups may be manageable for demonstration type)	D: Unmanageable class size / lab groups. W: Poorly manageable class size /lab groups. C: Manageable class size/lab size but exceeding desired limits
vii	Manageable semester academic load (i.e. 15-18 Cr. Hrs)	D: Unmanageable semester academic load W: Poorly manageable semester academic load C: manageable semester academic load but exceeding desired limits
viii	Completion of courses as evident from course-files and through student feedback	D: Course files not maintained or majority course completion is less than 70% W: Course files partially maintained or majority course completion is less than 80% C: Course files maintained and few courses have less than 90% completed.
ix	Students' participation in national / international engineering exhibitions and / or competitions, and facilitation by program for such participations	D: No participation in any event. W: Limited participation C: Participation in national events but not in international events
x	Quality of process to evaluate student performance and suggest / take corrective measures	D: No process is in place W: Process outlined but never followed C: Assessment is carried out but limited corrective actions are taken

Sr. No.	Criteria	Observations and Remarks For Non-Compliance
	Criterion-5: Faculty and Support Staff	
i	Sufficient Faculty Strength for providing effective student-teacher interaction (student-teacher ratio should be as per PEC guidelines, i.e. better than 20:1)	D: student-teacher ratio 30+:1 W: student-teacher ratio 25-30:1 C: student-teacher ratio 20-25:1
ii	Balanced faculty having appropriate qualifications (min. postgraduate with a reasonable percentage holding PhD) to cover all areas of program curriculum	D: Less than 3 PhDs. W: Insufficient faculty in core areas of the program, C: faculty deficient in any one core area of the program

iii	Formal mechanism for faculty training and mentoring on pedagogical skills including OBE concepts and implementation methodologies.	D: No formal training W: Limited formal training not covering all areas. C: Formal training but not effective implementation
iv	Effectiveness of faculty development program to ensure their professional growth and retention.	D: No faculty development program W: Limited faculty development program C: FDP is in place but not effective for faculty retention/growth
v	Reasonable faculty workload (as per PEC guidelines) including facilitation to young faculty pursuing higher studies.	D: Unmanageable faculty workload W: Work is not distributed keeping faculty workload and no policies exist for facilitation to young faculty C: Faculty workload is balanced but no facilitation to young faculty for pursuing higher studies.
vi	Continuation of faculty research, publications and sponsored projects from industry/donor agencies, etc.	D: No faculty research/ publications/ sponsored project in recent years W: Limited faculty research/ publications/ sponsored project in recent years C: No funding from external donor agencies/industry
vii	The program should be headed by a PhD senior faculty in relevant discipline. Reasonable mix of Senior and Junior qualified faculty be ensured.	D: Program is not headed by a senior PhD W: The program is headed by an inexperienced PhD faculty or not from the relevant discipline. C: Majority of the faculty is young and inexperienced

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	Criterion-6: Facilities and Infrastructure	
i	Adequacy of teaching and learning facilities, e.g. classroom environment and availability of various teaching aids, etc.	D: Essential infrastructural facilities is very limited in relation to the student population W: 1) Infrastructural facilities are reasonable, but not adequately maintained; OR 2) Most of the facilities are adequate but some have capacity/adequacy issues; OR 3) There is very limited availability of teaching aids in the classrooms / laboratories OR C: 1) Teaching learning environment is not very conducive. 2) Teaching aids are available but quite limited in number and variety;
ii	Provision of program specific labs (as per curriculum), workshops, and associated lab equipment for complementing the class / theory work.	D: 1) The program does not have ALL the required labs for the program; OR 2) The labs are deficient in terms of availability of essential laboratory equipment. W: Fewer number of workstations/ equipment in the labs, thus hindering sufficient hands-on opportunity to the students; C: 1) Non-functional and/or very old equipment of limited use; OR 2) Generally congested lab spaces

		3) Most of the Labs being overly committed with very few free slots available for students to makeup for their missed lab sessions/experiments or to work on their own projects, space inadequate
iii	Adequacy of library resources and facilities.	<p>D: 1) Too small of a Library (in terms of space, seating capacity, number of books etc.) with regard to the overall university population, unless complemented by a reasonably sized departmental library for the program students; OR</p> <p>2) No or very limited access to program related research Journals (hardcopy/online) and very limited and out of date program related as well as general books</p> <p>W: 1) Congested Library Space with inadequate seating capacity; OR</p> <p>2) No or very limited printing/xeroxing facility; OR</p> <p>3) No internet connectivity and/or No computers for online access ; OR</p> <p>4) No Digital Library and e-books; OR</p> <p>5) Too few program specific technical books and/ Journals.</p> <p>C: 1) Too few computers and/or very slow internet connectivity.</p> <p>2) Limited number and variety of latest Reference / Text books (i.e. published in last 5 years) for the program;</p>
iv	Provision of sufficient computing facilities and internet access / resources allocated for the program.	<p>D: Rare computing facilities and no internet access for faculty / students</p> <p>W: Limited computing and internet access</p> <p>C: Limited internet access</p>
v	Provision and effectiveness of consulting and career placement services provided to the students	<p>D: Does not exist</p> <p>W: Exist but with very limited scope and resources.</p> <p>C: Available but not efficient, rare contribution</p>
vi	Adequacy of support facilities such as hostels, sports and recreational centers, health care centers, student centers, and transport facilities	<p>D: No concept/existence of any support facilities; neither is there any plan for acquiring these.</p> <p>W: Inadequate facilities; planned for future but not yet approved.</p> <p>C: Support facilities are available, some adequate and some inadequate; however, their provision / extension is planned and approved.</p>
vii	Adequacy of arrangements made / measures taken to ensure work-place safety (EHS concerns) in general, and while performing experiments in the labs. in particular	<p>D: No awareness about safety, Highly unsafe environment, Not even basic fire-fighting equipment and/or emergency exits.</p> <p>W: 1) Conscious about workplace safety and several safety measures in place. However, no formal policy/procedures for EHS documented;</p> <p>2) Very Weak safety measures inside / around laboratories.</p> <p>C: 1) EHS concept/SOPs exist but occasionally / limited practiced. (No evidence)</p> <p>2) Safety measures available in labs but needs improvement and proper maintenance.</p>

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	Criterion-7: Institutional Support and Financial Resources	
i	Adequacy of institutional financial resources to ensure program's sustainability and meeting of recurring as well as developmental requirements.	D: Unstable Institutional financial resources W: Hardly meeting recurring budgetary expenses AND NO / barely minimal developmental budgetary allocations / roadmap C: Adequacy of financial resources for the recurring expense But Developmental budget for the program is not adequate / allocated
ii	Evidence of continued financial commitment in the form of increasing endowment and recurring /development budget since last accreditation visit.	D: 1) Financial health in terms of Endowment fund, investments, etc. has gone down drastically as compared to that at the time of last accreditation visit; OR 2) Inadequate recurring/ development budget. W: Financial health in terms of Endowment fund/, investments, etc. maintained but inadequate recurring/ development budget. C: No improvement in financial health in terms of increased Endowment fund, investments, etc.
iii	Provision of funding for R&D pursuits and presentations/publication of research papers	D: No provision of funding W: Inadequate Funding, and that too mostly not utilized because of no motivations / encouragement for Publications and Research projects C: Some funding for R&D pursuits and publications (in the last 2-3 years)

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	Criterion-8: Continuous Quality Improvement (CQI)	
i	CQI process is well documented and institutionalized at all levels (CLOs, PLOs and PEOs).	D: CQI process / mechanism is not in place W: CQI is defined and institutionalized but not practiced. C: CQI is well documented, institutionalized and practiced at all levels, but some of the corrective actions are not taken.
ii	Actions taken / implementation plans worked out to address the concerns/weaknesses identified in the last accreditation visit report.	D: No actions are taken and no implementation plans are made. W: Only partial actions are taken (less than 50%) and/or unsatisfactory implementation plans are made. C: The major actions are taken (more than 50% but less than 75%) and somewhat satisfactory implementation plans are made.
iii	Improvement in Faculty Strength / Qualifications since last accreditation visit	D: Only partial improvement (less than 50%) in Faculty Strength/Qualifications, if required. W: Somewhat improvement (more than 50% but less than 75%) in Faculty Strength/Qualifications since last accreditation visit. C: Significant improvement (more than 75% but less than 90%) in Faculty Strength/Qualifications since last accreditation visit.

iv	Improvement in Student-Teacher Ratio since last accreditation visit	D: Only partial improvement (less than 25%) in Student-Teacher Ratio, if required. W: Somewhat improvement (more than 25% but less than 50%) in Student-Teacher Ratio since last accreditation visit. C: Significant improvement (more than 50%) in Student-Teacher Ratio since last accreditation visit.
v	Continuation of Faculty Publications, R&D and Consultancy activities	D: No publications / R&D /Consultancy projects since last visit W: Limited research publications / R&D / consultancy activities. C: Lack of Journal publications and /or funded R&D / consultancy activities.
vi	Addition of any new facilities, i.e. infrastructure, lab equipment, teaching aids, etc. to assist in the attainment of program objectives / outcomes, since last accreditation visit	D: No addition of new facilities. W: Limited addition of new facilities. C: Some addition of new facilities , yet the specific
vii	New initiative(s) taken since last accreditation visit (including but not limited to OBE implementation, content delivery, assessment and evaluation processes, etc.)	D: No new initiatives taken. W: No significant new initiatives taken. C: Few significant new initiatives taken.

Sr. No.	Criteria	Observations and Remarks For Non-Compliance
	Criterion-9: Industrial Linkages	
i	Existence of active Industrial Advisory Board/Committee	D: No Industrial Advisory Board exists. W: Industrial Advisory Board exists but is inactive. C: Meets irregularly.
ii	Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs	D: No formal mechanism in place. W: The formal mechanism is in place but the assessment tools / methods do not correlate with the PEOs. C: The formal mechanism exists and its assessment tools / methods also correlates with the PEOs; however, effective analysis not periodically performed.
iii	Opportunities for students to acquire industrial experience via internship and existence of Industry-Liaison office	D: No dedicated Industry-Liaison office exists. W: A dedicated Industry-Liaison office exists, but plays no role in arranging internships. C: A dedicated Industry-Liaison office exists, but its effectiveness is limited.
iv	Design projects sponsored / supervised jointly by Industry Professionals and faculty members	D: No sponsored design projects and no joint supervision. W: No sponsored design projects but limited joint supervision. C: Industrial linkages exist but limited sponsored design projects.
v	Faculty members involved in design / supervision / consultancy role with the industry in the execution of industrial projects	D: No faculty involvement with industry, and no policy exists. W: Irregular and Limited faculty involvement with industry. C: Regular but limited faculty involvement with industry.

