Pakistan Engineering Council

PEVs Guidelines

Pakistan Engineering Council

GUIDELINES FOR PROGRAM EVALUATORS

Preface

Pakistan Engineering Council (PEC) has always strived hard to maintain high quality of its program's evaluation and accreditation process. The process has matured over the years and every aspect has been streamlined to enhance the credibility of evaluation. During accreditation visits, the conduct and decision making of the Program Evaluators (PEVs) are of prime importance and crucial to the overall process and acceptability of the evaluation decision. To achieve these goals, guidelines have been prepared for the PEVs which should be treated as an integral part of the Accreditation Manual 2014. The main objective of this document is to make the evaluation process and decision making consistent, impartial and defendable across the board.

This publication, *Guidelines for Evaluation Panel*, is a part of the PEVs Package, which provides the evaluators with basic guidelines, policies, course of actions and tools to complete the accreditation process in an efficient and desired manner. In addition to these guidelines, the package includes *Code of Ethics for PEVs,* the same should be filled by each member of the evaluation team before engaging him/herself into the conduct of the visit; *Evaluator's Aplomb and Decorum at Accreditation Visit* that describes general conduct of the PEVs during the visit. The package also includes a *Program Evaluation Worksheet* that is to be filled by the PEVs and submitted along with the *Program Evaluator Summary* repor*t*, the *Exemplar Format* of which is also provided. To maintain the fairness of the process and to complete a 360-degree loop, the document also contains two forms: a) *University/HEI Feedback* regarding the visitation team and b) *Peer Evaluation*. These forms will be filled by each PEV and the host University/HEI. These forms shall be received by the PEC directly through its representative.

These guidelines are organized into different sections: a) how to prepare for the accreditation visit; b) a typical schedule of the visit; c) how to prepare the Program Evaluator Summary Report and finally d) how each criterion and sub-criterion of the PEV Worksheet should be assessed. It should be noted that these guidelines only give examples of the

performance indicators and the evidence to be sought by the PEVs against each defined attribute.

At the end, *Program Evaluation Worksheet Rubrics* is also provided, which is helpful to the PEVs to interpret the three compliance levels, namely, *Deficiency*, *Weakness*, and *Concern*, against each criterion and sub-criterion. There are a number of assessment attributes against each of the nine main criteria defined in the Accreditation Manual 2014 and also in PEV Worksheet. Naturally, all these assessment attributes do not carry equal weightage towards the bigger picture that has to be drawn by the Evaluation Panel while arriving at the final decision about the accreditation of a specific program. The *Program Evaluation Worksheet Rubrics* not only defines the compliance level against each assessment attributes, it also emphasizes on the importance of each assessment attributes by assigning it a number legend, i.e. 1, 2, 3 or 4, and a colour code that is indicative of the contribution of a specific assessment attributes to the overall compliance level of the main criterion. It should be noted that there is no quantitative mechanism for the final decision making and these number legends are just provided to help the PEVs in knowing about the relative importance of each assessment attributes. It will also help the PEVs to draw the bigger picture and to maintain consistency in their decision making.

1.   INTRODUCTION

This document serves as a guide to all Program Evaluators (PEVs) who are appointed by the EA&QEC/EAB, on their responsibilities and conduct during the accreditation exercise. It must be adhered to strictly in order to ensure consistency between one Evaluation Panel and another in terms of evaluation and final recommendation. The Guidelines have been developed based on the PEC Accreditation Manual-2014, for Engineering Programs, and improved further based on feedback from Washington Accord Mentors and relevant stakeholders, HEIs and industry.

2.   PREPARATION FOR ACCREDITATION VISIT

The Program Evaluation Panel needs to be aware of the PEC policies on accreditation as detailed in PEC Accreditation Manual-2014.

The Evaluation Panel members shall read the program documentation carefully, with a view to ensuring that it provides the necessary information sought by the EAB in the prescribed format.

The Evaluation Panel will assess the Program Objectives and Outcomes as well as

carry out an evaluation based on all the accreditation Criteria 1 to 9 set forth in Section 3 of PEC Manual. The assessment includes the auditing and confirmation of documents submitted by the HEI. If the documents submitted are not complete, the Evaluation Panel shall request for the additional information through the EAB.

These Guidelines for Evaluation Panel are useful for ensuring that every important aspect of a degree program and its delivery are assessed and reported upon. However, it should be remembered that the aim of the accreditation is to determine whether a degree program meets the academic requirements of the EAB or not.

The Evaluation Panel chair and Evaluation Panel members, either together or separately, should prepare a list of questions for each section of the criteria to be certain that all aspects of the criteria have been addressed. If the HEI does not provide sufficient information, the EAB should be notified and asked to request the additional information from the HEI. When the information is received, it should be forwarded to the Evaluation PEVs. It is highly desirable for the Evaluation Panel to meet face to face and/or communicate by phone and/or e-mail regarding issues associated with the evaluation before the Pre-accreditation Visit Meeting.

3.   DURING VISIT

Experience indicates that the success and credibility of an accreditation visit is shaped by:

- the professionalism and **_prior preparation_** of the Evaluation Panel and the rigor and objectivity of on-site enquiries and the report;
- the quality of feedback provided to the HEI by the Evaluation Panel; and
- timeliness of report to the EAB.

The visit schedule should allow time for group discussion among all Evaluation Panel members for preliminary feedback and discussion of issues with the Dean and/or Head of the Department/Faculty/School/Program.

Typical Schedule

Schedule of the Visiting Teams
Following is a typical schedule of the visiting team

Day 0:
Firstly, the Convener holds a pre-visit meeting with members in connection with the evaluation of the program, preferably in the evening before the first day of the visit. The meeting is mainly focused on the points of concern noted by the team members

and exchange of views on the provided information. The team uses a pre prepared worksheet throughout to assist in the evaluation and discussion.

Day 1:

The schedule includes:

i.   Opening meeting with senior administration of the institution;
ii. Presentation by the Head of the Department of program being evaluated and ensuing discussion;
iii. Assessment and analysis of documents displayed in the exhibit room;
iv. Visit of program laboratories and allied facilities;
v.   Interaction with students;
vi. Visit to supporting and interdisciplinary departments and discussion with supporting staff;
vii. Visit to allied facilities such as library, computing, internet, medical, sports, hostels etc.;
viii. Discussion with alumni, employers and other stakeholders;
ix. Meeting with the faculty members;
x.   Second review meeting of team members regarding assessment of the program.
xi. The evaluation team may request for any additional information / data or facts for clarifications to resolve issues or queries.

Day 2:

Typical activities include:

i.   Review of any additional information/data or facts, requested by the visiting team, for clarifications to resolve issues or queries.
ii. Third review meeting of team members on overall assessment of the program;
iii. Sharing observations (strong and weak areas of the program) with the higher management of HEI;
iv. Final meeting (post-visit) of the team members for compilation of draft visit report;
v.   Submission of final visit report to EAD for EAB

There is an optional Day-3 morning schedule for continuation of the final meeting of Day 2 to complete compilation of visit report.

General Conduct and Scrutiny of Documents

Throughout the discussions with the administrators, academic staff, students, and support staff, the Evaluation Panel should confirm that an outcome-based approach to education is progressively being implemented by the HEI.

Meetings with alumni, employers, and other stakeholders are important, as this would give an indication of their involvement in the CQI process of the program.

It is expected that all HEIs will strive to achieve and maintain the highest standards. Thus, the quality control aspect has to be audited by the Evaluation Panel.

The Evaluation Panel is to evaluate the submitted documents and check on the relevant sections according to the following Checklist of Documents for Accreditation and Relevant Information as defined by EAB:

a. A copy of latest prospectus
b. Admission details/policies for the concerned engineering programs.
c. Program curriculum, evidence of benchmarking, regular review and consistency with PEC / HEC guidelines and adoption of Outcome Based Education (OBE) System
d. Course files, lab manuals and student feedback for the subjects offered in the program.
e. PEOs and PLOs assessment and attainment folders indicating complete process.
f. Random check of students' work, question papers and answer sheets and student attendance record.
g. Proof/evidence that assignments are properly graded
h. Evidence of exposure to Complex Engineering Problems (CEPs) and activities, Problem based learning, design projects and open ended labs.
i. Availability of training aids for imparting quality education
j. Record for student internship and employer feedback
k. Evidence for Continuous Quality Improvement (CQI) of the program and implementation plan
l. Record of minutes of meetings; policy documents, faculty profile; syllabi; research publications; project reports, Industrial Advisory Board/ Committee and other such documents required as evidence
m. Record of Final Year Projects and sample reports
n. Validity of PEC Registration for all Engineering Faculty / Staff
o. Details pertaining to faculty members to verify their requisite qualifications, publications, R&D projects and research funding
p. Continuing Professional Development (CPD) and other training for faculty / staff
q. Proof/evidence of faculty workload
r. Details of laboratories with equipment, its supporting staff and lab manuals.
s. Evidence for provision of general environment, health and safety (EHS).
t. A copy of approved budget (previous and current years) for the university and concerned engineering programs to be evaluated. Including current endowment fund status.
u. Details of self-generated financial resources through consulting, field/ lab testing etc. and their distribution if any
v. Details of conference, seminars, CPD courses and colloquia held by the department/institution
w. Controller of Exams, Treasurer / Finance Manager, Registrar, concerned faculty members, alumni, employers and students should be available to the visitation team along with relevant records
x. Actions taken by the university / institution on deficiencies/ weaknesses and concerns pointed out in last visit report (if applicable)
y. Other additional document(s) required in support of the program

4.   **EVALUATION PANEL REPORT**

The Evaluation Panel is to prepare a report. Appropriate comments and remarks shall be made based on the assessment, which includes auditing and confirmation of the documents submitted by the HEI.

The Evaluation Report shall:

(a) State whether the program meets EAB requirements.
(b) Where appropriate, provide constructive feedback (weaknesses and concerns) and note positive elements (strengths). Suggestion for opportunities for improvement should be given in the report.
(c) In the event of adverse comments, provide a judgement as to the seriousness, any remedial action proposed or required, the time frame for the remedial action, and whether accreditation should be recommended, or deferred.
(d) Make clear and unequivocal recommendations to EAB

The Evaluation Report should be forwarded to EAB no later than 4 weeks after the visit.

For full accreditation of five years, there should not be any deficiency or weakness for any sub-criterion of 9 compliance Criteria defined in Section 3of PEC Manual 2014. Up to four (4) years accreditation may be recommended if the program has some or several weaknesses (minor shortcomings) and concerns, but no deficiency. Declined accreditation, would be recommended for the program if there is any deficiency and (non-compliances) for any of the criterion.

Before proceeding with the thorough evaluation of the criteria, the Evaluation Panel must ensure that the following qualifying requirements have been met by the program:

i.   Minimum 130 credit hours of which around 65% must be engineering subjects offered over a four-year period

ii.   Final year project

iii.   Industrial training

iv.   Minimum of 4 full-time Engineering faculty members

v.   Teacher : student ratio of 1:25 or better

vi.   Program Education Objectives

vii.   Program Learning Outcomes

If any of the requirements above are not complied with, the application for accreditation shall be rejected.

5.   ASSESSMENT AND EVALUATION

The following guidelines may be helpful to the Evaluation Panel for evaluating against each criterion and sub-criterion as defined in the PEVs worksheet. The performance indicators and the examples of evidences which are to be sought against each criterion and sub-criterion are defined. In addition to the following guidelines, the PEVs should also peruse through the "Program Evaluation Worksheet Rubrics", which define the compliance levels, i.e. *Deficiency*, *Weakness*, and *Concern* against each of the criteria.

CRITERION 1 - PROGRAM EDUCATION OBJECTIVES (PEOs)

ASSESMENT ATTRIBUTE	GUIDE FOR EVALUATION
Well-defined and published Institute Vision and Mission	An Institution seeking accreditation for its engineering program shall have well defined and published Vision and Mission. The Program may have its own Mission statement or follow the Institution Mission.
PEOs are defined, consistent with the Vision / Mission, and well publicized	An engineering program seeking accreditation shall have published PEOs that are consistent with the mission and vision of the HEI, and are responsive to the expressed interest of various groups of program stakeholders. **Performance Indicators:** • Defined, measurable and achievable • Linked to Program Outcomes have own niche • Well documented • Published • Consistent and linked to Mission &Vision of HEI **Examples of Related Evidence:** • Mapping of PEOs with key words in Vision and Mission statements • University publications like prospectus, website and display boards
Involvement of stakeholders in formulation / review of PEOs	The HEI shall provide evidence of stakeholder involvement in the program with regard to Sections 3.2.1 of the Manual. **Performance Indicators:** • High degree of stakeholders involvement in defining Program Objective statements • Reviewed and updated with involvement of stakeholders • High degree of involvement in assessing the achievement of Program Objectives • High degree of involvement in the review process of PEOs • High degree of involvement in assessing improvement cycles

(CQI)
- Involved in strategic partnership

Examples of Related Evidence:
- Meeting Minutes showing involvement of stakeholders like Industry Representatives and Alumni
- Evidence of actions taken by the HEI on stakeholders recommendations

A process in place to evaluate the attainment of PEOs	The program shall have instituted a process of formulating Program Objectives and the process of assessing and evaluating the achievement of Program Objectives with documented results. The evaluation results are used in the continual improvement of the program.

Performance Indicators:
- Established process for formulating Program Objectives
- Established process for assessing achievement of Program Objectives
- Established process for evaluating achievement of Program Objectives
- Performance target of the Program Objectives is achieved

Examples of Related Evidence:
- Documents defining PEO evaluation process
- Data used for PEO evaluation like Survey forms
- KPIs defined in the evaluation process and their justification

Evaluation results used for continual improvement of the program	An engineering program seeking accreditation shall have Established CQI Process for Review of PEOs as well as improvement of the Program as a result of PEO evaluation.

Performance Indicators:
- Established Process for Reviewing and updating PEOs
- Evaluation results are used in the CQI of the program

Examples of Related Evidence:
- Documents showing analysis of results of PEO evaluation and recommendations for improvement of Program
- Evidence related to actions taken on these recommendations

CRITERION 2 - PROGRAM LEARNING OUTCOMES (PLOs)

ASSESMENT ATTRIBUTE	GUIDE FOR EVALUATION
PLOs are well-defined and publicized.	The program shall have well defined and publicized Program Outcomes known and understood by the students and faculty.

Performance Indicators:
- Well defined PLOs
- PLOs publicized properly and known to students and teachers
- PLOs formulation is done through a formal process

Examples of Related Evidence:
- University publications like prospectus, website and display boards
- Knowledge of PLOs can be judges through interactions with students and faculty

PLOs are appropriately linked to PEOs

An engineering program seeking accreditation shall ensure that the PLOs are linked with the PEOs defined for the program.

Examples of Related Evidence:
- A mapping of PLOs vs PEOs with appropriate justification

PLOs encompass all the required Graduate Attributes as defined in EAB Accreditation Manual

An engineering program seeking accreditation shall ensure that all the required Graduate Attributes (GAs) as defined in the EAB Manual are included and encompassed in the defined PLOs.

Performance Indicators:
- All 12 GAs defined in EAB Manual (Section 3.2.2) are encompassed in PLOs
- All related PLOs are assessed to ensure attainment of these attributes

Examples of Related Evidence:
- A mapping of PLOs vs GAs
- Course files and class assessment
- Separate assessment of all PLOs

Mapping of Courses to PLOs

An engineering program seeking accreditation shall ensure that the courses defined in the curriculum contribute towards attainment of the defined PLOs. Therefore, a mapping of courses to the defined PLOs shall be provided to the panel to show the contribution of individual courses towards attainment of specific PLOs.

Examples of Related Evidence:
- Well defined mapping table of courses vs PLOs in place and followed for attainment and assessment of PLOs
- Detailed evidence of contribution of each course as defined in the mapping is given through course files about the level learning and assessment methods adopted in the course

Teaching-learning and assessment methods appropriate and supportive to the attainment of PLOs

The program shall ensure attainment of program outcomes through appropriate and supportive assessment methods. All learning domains must be covered in the assessment methodologies in order to attain all graduate attributes.

Performance Indicators:

- Problem based learning methods are incorporated throughout the duration of engineering education
- All types of assessments including written, oral, behavioral and indirect are incorporated to assess achievement of Program Outcomes
- Assessment results are analyzed to improve assessment methods

Examples of Related Evidence:
- Theory and Lab Course files and class assessment
- Separate assessment of all PLOs
- Analysis of PLO attainment results of individual courses and overall program

Quality of assessment process to evaluate the attainment of PLOs at student as well as cohort levels through well-defined KPIs

The program shall establish a process of measuring, assessing and evaluating the degree of achievement of Program Outcomes by the students. The results of this assessment process shall be applied for continual improvement of the program.

Performance Indicators:
- Processes for all elements of criteria are quantitatively/ qualitatively understood and controlled
- Process of evaluation in place at Student level, Course level and Program level for every PLO of the program
- Systematic evaluation and process improvement in place
- CQI involved support areas
- KPIs are well defined with reasonable justification
- Processes are deployed throughout the program, faculty, and HEIs
- Sustainable processes
- Results clearly caused by systematic approach

Examples of Related Evidence:
- PLO assessment and its analysis at student level, course level and program level
- Corrective actions taken in response to the assessment results at all three levels
- Evidence of systematic involvement of all related offices like QEC, Departmental office and Counselors

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

The program shall also establish a process of refinement of PLOs assessment mechanisms, updating KPIs and review PLOs. The results of this assessment process shall be applied for continual improvement of the PLO evaluation process.

Performance Indicators:
- A sustainable systematic process for updating PLO assessment methods and mechanism in place
- Assessment data from various sources is gathered to update the processes
- A methodical analysis of previous data is done in order to improve the assessment methodologies and mechanisms

Examples of Related Evidence:
- Evaluation of assessment results and evidence of improvement in assessment methodologies and assessment
- Documents defining process of updating defined KPIs and evaluation process
- Analysis of evaluation results and actions taken to improve evaluation processes

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CRITERION 3 - CURRICULUM AND LEARNING PROCESS

ASSESMENT ATTRIBUTE

GUIDE FOR EVALUATION

Curriculum covers required breadth, depth and distribution of the program courses according to program specific (HEC/PEC NCRC curriculum) guidelines

The academic curriculum shall be appropriate to support the attainment of Program Learning Outcomes.

Performance Indicators:
- The curriculum follows the guidelines of National Engineering Framework regarding the knowledge profile, required breadth and depth in the curriculum, and the distribution of program courses as publicized by National Curriculum Review Committees (NCRC)
- Emphasis on the understanding and acquisition of basic principles and skills of the discipline, rather than memorization of facts and details.
- The program structure covers the essential fundamental principles at the initial stages, leading to integrated studies in the final year of the program.
- The curriculum provides students with ample opportunities for analytical, critical, constructive, and creative thinking.

Examples of Related Evidence:
- Course-files and exam papers,
- Lab reports and semester projects
- Final-year project reports

Curriculum provides balanced coverage of engineering and non-engineering contents in-line with National Engineering Qualifications Framework (NEQF)	The curriculum of the program seeking accreditation will have balanced coverage of both engineering and non-engineering knowledge and skills. **Performance Indicators:** • The curriculum develops ability of scientific & quantitative reasoning, critical analysis, system design and creativity • Additionally, the curriculum also enables graduates to demonstrate competence in oral logical thinking, written and oral communication, and capacity for life-long learning. • An amalgamation of well thought and carefully selected non-technical components in the curriculum is ensured. • The general framework pertaining to the balance between engineering and non-engineering courses (i.e. course in Mathematics, Natural Sciences, Humanities and Management Science) should be as per PEC guidelines. **Examples of Related Evidence:** • Curriculum book, prospectus and other documentation related to curriculum • Benchmarking of the curriculum with NCRC guidelines • Courses vs PLOs mapping for the curriculum • Course files and class assessments for engineering as well as non-engineering courses • Faculty interactions especially of non-engineering courses

Adequate exposure to Complex Engineering Problems (CEPs) and Activities	The curriculum should ensure that the students get enough exposure to various attributes of complex engineering problems and activities.
	
	Performance Indicators:
	• The research assignments, design projects, open-ended lab exercises, and even exam questions include attributes of CEPs.
	• The students are systematically trained on CEPs by giving tasks that have no obvious solution and require abstract thinking, originality in analysis, and/or involve wide-ranging or conflicting technical, engineering and other issues.
	• The design projects target high level problems which
	    o include many component, parts or sub-problems, infrequently encountered issues,
	    o use diverse resources such as equipment, materials, information and technologies, etc.,
	    o require resolution of significant problems arising from interactions between several conflicting or wide-ranging issues.
	
	Examples of Related Evidence:
	• Assessment and reports related Course projects, Lab projects and Semester projects
	• Interactions with Faculty and students

Availability of program specific well equipped labs to supplement	The program shall be supported by well-equipped labs and the curriculum shall be designed to induct required practical knowledge and skills in the students.

theoretical knowledge/class room learning

Performance Indicators:

- The teaching / learning in each core engineering subject are supported with sufficient practical work in the labs.
- Each student is given ample exposure to practical aspects of the subject
- The existence and availability of all the requisite laboratories for the program.
- The labs are well-equipped with adequate number and variety of workstations, i.e. equipment/machines, basic components, modules, measuring instruments, etc.
- Each lab has formal lab manuals containing all the experiments to be conducted for each lab course.

Examples of Related Evidence:

- Labs and operational status of equipment
- Related documentation including lab manual, equipment list, assessment records, procurement and maintenance records, lab store records

Lab work supporting the attainment of the required skills and its assessment mechanism

Students shall receive sufficient laboratory work to complement engineering theory that is learnt through lectures.

Performance Indicators:

- Laboratory exercises are relevant, adequate, illustrative, and promote development of instrumentation skills.
- The laboratory exercises and activities help the students develop skills and competence in executing experimental work.
- There is proper laboratory supervision by adequate number of qualified academic staff members.
- Students, whether working in a group or individually, are getting enough hands-on to develop the desired skills for the practical work.

Examples of Related Evidence:

- Laboratory reports shall be evaluated to check that the assessment of laboratory reports have been done through a systematic manner.
- These reports should also reveal that the required outcomes have been achieved.

CLOs defined for all courses with appropriate Learning-Levels, e.g. the ones defined in Bloom's Taxonomy, and their mapping to relevant PLOs

Each course of the curriculum shall have well defines course learning out comes with their mapping to relevant Program Leaning Outcomes**.**

Performance Indicators:

- Learning Outcomes for each course have been defined and also mapped to appropriate taxonomy levels.
- The action verbs used commensurate with the indicated taxonomy levels.
- The contribution and emphasis level of each CLO to respective PLO has been clearly documented.
- The appropriateness of these mappings are evaluated through

the review of course materials, i.e. course syllabi, assignments / quizzes, exam papers, project and lab reports, etc.

- The teaching plan, CLO-PLO mapping and assessment methodologies are made known to the students, preferably in the first week of the semester.

Examples of Related Evidence:
- Course files containing course plans, assessments, Course CLO mapping, learning levels, CLO /PLO evaluation and analysis

Benchmarking of curriculum carried out with National / International best practices – Washington Accord (WA) recognized programs

Benchmarking is deemed essential to ensure the curriculum structure and course coverage meets or is compatible with the best practices in established universities and hence meet international standards.

Performance Indicators:
- Benchmarking of curriculum has been carried out through an in-depth evaluation of the course syllabi / topics in relation to other renowned national / international universities offering same/similar program.

Examples of Related Evidence:
- The documentary evidence of the extent of benchmarking carried out and its analysis / outcome.

Formal involvement of industry in curriculum development / revision

The involvement of stakeholders should be of prime importance for the program. PEVs shall examine the relationship established between the program and the intended stakeholders by going through the documentary evidences.

Performance Indicators:
- A formal mechanism is in place, and also is practiced regularly, to seek inputs from all the stakeholders, especially from the industry,
- These feedbacks from stakeholders are used in developing curriculum contents so as to keep the curriculum aligned with the program objectives and outcomes

Examples of Related Evidence:
- Record of minutes of meetings with stakeholders
- Evidence of changes incorporated in the curriculum due the feedbacks
- Membership evidence of stakeholders in curriculum related bodies like Board of Studies, Curriculum committees etc.

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

A program seeking accreditation should ensure that other varieties of teaching-learning (delivery) modes are used alongside the traditional methods such as regular classroom teaching, laboratory experimentation and faculty consultation to enhance learning of students.

Performance Indicators:
- Other aspects of student learning such as tutorial system, seminar / workshops, independent research assignments and exposure to industrial practices form an integral part of

experimentation	curriculum.
	• Assessment and evaluation methods are designed, planned and incorporated within the curriculum to enable students to effectively develop the range of intellectual and practical skills, as well as positive attitudes as required in the program outcomes.
	• Co-curricular activities are designed to enrich student experiences, foster personal development and prepare them for responsible leadership.
Exposure to cooperative learning through supervised internship program with formal feedback from the employer	Exposure to professional engineering practices in the form of an industrial training scheme should be ensured by a program seeking accreditation.
	Performance Indicators:
	• The industrial training is an integral part of the curriculum to make the students familiar with the common engineering processes at a practical level.
	• Efforts are made to assist all students in gaining placements at suitable quality facilities in industry.
	• The program facilitates and promotes cooperative learning through supervised internship program of at-least continuous 4-6 weeks duration in an engineering practice environment/ organization.
	• The training program has been planned and agreed to between the institution and the host organization.
	• The institution receives report about each trainee indicating the training details, interest shown by the student, his/her work habits and punctuality.
	Examples of Performance Indicators:
	• Student-wise internship records
Sufficient opportunities to invoke intuitiveness and originality of thought through Problem Based Learning (PBL), Design Projects and Open-Ended labs	To invoke intuitiveness, originality of thought and to challenge their intellect, offering of problem-based learning, open-ended labs and design projects in various semester courses should be formalized and made an integral part of the curriculum.
	Performance Indicators:
	• A Final Year Project (FYP) focuses on literature search, problem analysis, and design of components / systems / processes integrating core areas and meeting specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
	• Project topics are appropriate in relation to the degree program, and encompass key attributes of complex engineering problem and activities.
	Examples of Related Evidence:
	• Assessment and reports related Course projects, Lab projects and Semester projects
	• Final year project reports (it is suggested that at least 9 reports should be examined including 3 from the best group, 3 from

the middle group and 3 from the poor group)
- Interactions with Faculty and students

Assessment of various learning outcomes (PLOs/CLOs) employing appropriate direct / indirect methods	Assessment of various learning outcomes should be carried out by employing direct / indirect methods appropriate for that outcome. **Performance Indicators:** • Assessment is not confined to cognitive domain only, but is exercised in psychomotor and affective domains as well. • Complex outcomes which are not easily quantifiable, e.g. communication skills (oral / written), critical thinking, etc. are assessed through rubrics • Quality of Rubrics and assessment methods is at acceptable level. • Appropriate assessment methods (e.g. distributions of CLOs and PLOs with respect to the course topics, complexity and difficulty levels of exam questions in relation to the taxonomy levels, quality of rubrics, etc.) are employed throughout • The level of achievement against the targeted outcomes is evaluated and documented.

CRITERION 4 - STUDENTS

ASSESMENT ATTRIBUTE	**GUIDE FOR EVALUATION**
Admission Criteria meets / exceeds minimum eligibility criteria prescribed by PEC Regulations.	The program shall ensure through admission requirements that the students accepted have the minimum qualifications in-line with the PEC Regulations. PEC has set the following minimum requirements for admission into any engineering program: • 60% marks in F.Sc (Pre-Engineering) / Equivalent Qualification • Qualifying the Entry Test **Examples of Related Evidence:** • Admission details of last few intakes including total applicants, qualifying applicants, merit criteria and related details
Annual intake is in-line with the maximum intake allowed by EAB for the program.	The annual intake in the program is in-line with the maximum intake allowed by PEC for the said program. **Examples of Related Evidence:** • Admission details as well as current registration records for all students enrolled in the program
Well documented policy on transfer of students only from other accredited program restricting transfer of	The HEI must have a well-documented policy on transfer of students from other institutions. **Performance Indicators:** • A well-documented student transfer policy is followed • Transfer only from other accredited programs is allowed

less than 50% of Cr Hrs required for the degree	• A restriction of transfer of less than 50% of total Credit Hours required for the degree is implemented
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	**Performance Indicators:** • The HEI has system 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. • Academic progress of each student should be monitored and corrective measures should be taken on regular intervals. • A well-defined mechanism for this is in place.
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	**Performance Indicators:** • The HEI has an established counseling system through which designated student counselors advise students regarding academic matters by reviewing his/her progress • Additional counseling is also provided related to career matters, assistance in managing their health, financial, stress, emotional and spiritual problems.
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)	The HEI should have a manageable class-size. For engineering subjects, average class size should be limited to 40-50 students per section. For non-engineering subjects, a bigger class size of 70-80 students may be allowed. For laboratory sessions, the number of students per workstation should be limited to 2-3 students per workstation for hands-on type experiments. Larger groups may be considered reasonable for demonstration type labs. Adequate number of lab engineers / staff should be available. **Examples of Related Evidence:** • Class and lab attendance reports • Utilization plan of lab equipment and lab schedule showing group wise breakup
Manageable semester academic load (i.e. 15-18 Cr. Hrs)	Students shall not be over-burdened with workload that may be beyond their ability to cope with. The Credit hours per semester must be limited to not more than 18 Credit hours.

Completion of courses as evident from course-files and through student feedback	The HEI should show that the course completion is ensured and achieved.

Examples of Related Evidence:
- Course folders containing the following information about the delivery of the course;
  - Course description including course contents, recommended text books, lecture breakdown, office hours for students, CLOs with taxonomy levels and their mapping to PLOs, assessment tools and their weightage, grading policy, etc.
  - Schedule of sessional / mid-term tests and final examination.
  - Samples of best, worst and average answer sheets, along with the question paper and model solutions of each sessional / midterm / quizzes / assignments and final examination.
  - Record of make-up classes for any un-scheduled holiday.
  - Breakdown of laboratory experiments pertaining to the course and record successful conduct.
  - Record of CLOs assessment and attainment
  - Instructor course feedback
  - Recommendations and suggestions related to the course for the next session.
  - Students feedback

Students' participation in national / international engineering exhibitions and / or competitions, and facilitation by program for such participations

Performance indicators:
- The HEI ensures students' participation in national / international engineering exhibitions and / or competitions, and facilitation by the program for such participations.
- Program encourages and facilitates participation in such competitions / exhibitions.
- The teaching-learning environment is conducive to ensure that students are always enthusiastic and motivated

Examples of Related Evidence:
- Documentary record of student's participation in mentioned events
- Awards, prizes, winner certificates and other certificates showing participation of students

Quality of process to evaluate student performance and suggest / take corrective measures

Performance indicators:
- A Quality Management system is in place to evaluate student performance and suggest / take corrective measures.
- Assessment methods, student evaluation and level of problems given to students are of sufficient quality to ensure achievement of all Graduate attributes as defined by PEC
- The number and variety of assessment tools and their coverage of subject topic is ensured through accurate assessment of students.

Examples of Related Evidence:
- Class assignments, quizzes, project reports, examinations as well as lab projects and viva-voice.
- Assessment results of CLOs and PLOs through these assessment methods

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CRITERION 5 – FACULTY AND SUPPORT STAFF

ASSESMENT ATTRIBUTE   **GUIDE FOR EVALUATION**

Sufficient Faculty Strength for providing effective student-teacher interaction (student-teacher ratio should be as per PEC guidelines, i.e. better than 20:1)

Student teacher ratio must be less than **25:1 as** per PEC guidelines, however, a ratio of better than **20:1** is desired for quality programs. The PEVs evaluating the program should count the number of Full-Time Dedicated Faculty, Shared Faculty, and TAs/ RAs as defined in PEC Manual for calculation of this ratio.

Examples of Related Evidence:
- Faculty loading of last few semesters and faculty profiles

Balanced faculty having appropriate qualifications (min. postgraduate with a reasonable percentage holding PhD) to cover all areas of program curriculum

The HEI should have balanced faculty having appropriate qualifications (minimum postgraduate with a reasonable percentage holding PhD) to cover all areas of program curriculum. Sufficient faculty should be available in core areas of the program.

Examples of Related Evidence:
- Faculty loading of last few semesters and faculty profiles

Formal mechanism for faculty training and mentoring on pedagogical skills including OBE concepts and implementation methodologies

Performance indicators:
- There is a systematic plan of activities for the training of newly inducted / young faculty members.
- There is a strategy to conduct workshops / seminars as a refresher for the exiting faculty.
- Faculty is trained with Outcome Based Education system and following should be covered in various training phases.
  - Teacher's training program
  - Program objectives and outcomes
  - Outcome-based assessment cycle and its implementation
  - General aspects of lecture delivery
  - Modes and means of effective student-teacher interaction
  - Using quizzes / assignments / exams / projects / viva as effective assessment tools

- Evaluation of assessment results to gauge level of attainment of CLOs
- Preparing and maintaining course files

Effectiveness of faculty development program to ensure their professional growth and retention

Performance indicators:
- Effective plan for academic and professional development is present.
- A systematic performance appraisal mechanism is in place.
- Adequate provisions for scholarships leading to PhD, training, mentoring and sabbatical leave for Postdoc research are provided.

Reasonable faculty workload (as per PEC guidelines) including facilitation to young faculty pursuing higher studies

The faculty workload should be as per the HEC guidelines, with an average not to exceed 9-12 hours per week. Workload of young faculty enrolled in postgraduate programs should be reduced.

Examples of Related Evidence:
- Faculty loading of last few semesters and faculty profiles

Continuation of faculty research, publications and sponsored projects from industry/donor agencies, etc.

Performance indicators:
- The institute makes provisions in the budget for allocations to participate and organize workshops, conferences, colloquia, etc.
- Policies for sabbatical leaves and short/summer leaves for the faculty to take-up post-doctoral research assignments at other national / international institutions /organizations are made.
- The efforts of faculty members, who secure R&D funds from industry/donors, are acknowledged in the form of reduced workload and/or financial incentives.
- Faculty members, especially those holding PhDs degrees, contribute actively in research, and are publishing research papers each year in reputed national and international ISI indexed journals

Examples of Related Evidence:
- Departmental budget showing research budget allocations
- Record of Research spending in last few semesters

The program should be headed by a PhD senior faculty in relevant discipline. Reasonable mix of Senior and Junior qualified faculty be ensured

The program should be headed by a PhD senior faculty in relevant discipline. Reasonable mix of Senior and Junior qualified faculty should also be ensured.

Examples of Related Evidence:
- Faculty loading of last few semesters and faculty profiles

<div align="center">CRITERION 6 – FACILITIES AND INFRASTRUCTURE</div>

ASSESMENT ATTRIBUTE	GUIDE FOR EVALUATION
Adequacy of teaching and learning facilities, e.g. classroom environment and availability of various teaching aids, etc.	The institute seeking accreditation should have ample teaching and learning facilities including modern facilities to aid classroom teaching. **Examples of Related Evidence:** • Availability of sufficient number of classrooms with modern equipment like multimedia and adequate size. • Other Auditoriums to conduct trainings, workshops, conferences and other co-curricular activities.
Provision of program specific labs (as per curriculum), workshops, and associated lab equipment for complementing the class / theory work	This is the most important criterion when evaluating the facilities of an institute. The HEI must have sufficient program specific lab facilities with sufficient equipment and workstations to run the program according to allowed student strength. **Examples of Related Evidence:** • Labs, exhibition of lab equipment and workstations • Lists of equipment, procurement and maintenance records • Time scheduling and equipment utilization plan according to student registrations showing group breakup per workstation
Adequacy of library resources and facilities	Library is an integral part of higher education and the HEI seeking accreditation must have adequate library resources including engineering and non-engineering books required for the program seeking accreditation. **Performance indicators:** • The library contains at least 1000 engineering book titles related to the program seeking accreditation • The library has an automated management system which enable students as well as faculty to search and issue books in an easy way • Sufficient research journals related to core areas of the program are also provided in terms of hard copies and/or soft subscriptions
Provision of sufficient computing facilities and internet access / resources allocated for the program	The institute must have ample computing facilities to enable its students to use internet and IT related facilities for modern learning. **Performance indicators:** • Sufficient internet facilities including fast internet connections considering the institute size • Availability of these computing and internet facilities to all students and faculty • Other facilities like printing and photocopying facilities are available to students

| **Provision and effectiveness of consulting and career placement services provided to the students** | The HEI seeking accreditation should provide facilities related to non-academic counseling and career counseling to its student. A dedicated office is desirable for such activities that keeps records of the students and helps students in their placement.

Performance indicators:
- A dedicated fully functional Placement Bureau exists
- A thorough system exists for career counseling
- Records of student's placement are available |
|---|---|
| **Adequacy of support facilities such as hostels, sports and recreational centers, health care centers, student centers, and transport facilities** | An HEI seeking accreditation should provide adequate support facilities such as hostels, sports grounds/courts, healthcare centers, recreational centers and transport.

Performance indicators:
- Sufficient sport facilities such as grounds, courts, swimming pools, are readily available to students
- Adequate hostel facilities are readily available within the premises or surroundings
- Sufficient transport facilities
- Additional facilities like Recreational Centers, Mosque, student centers and common rooms are available |
| **Adequacy of arrangements made / measures taken to ensure work-place safety (EHS concerns) in general, and while performing experiments in the labs. in particular** | HEI must ensure that all facilities are maintained and adhered to best practices related to Environment, Health and Safety (EHS).

Performance indicators:
- An effective Institute policy on EHS
- It is ensured that all students, staff, contractors, temporary workers and visitors are made aware of their individual responsibilities
- Safety is observed and being practiced, including measures like
  - there is a functional safety management system put in place,
  - safety signage are visible,
  - safety markings are clear and according to standards,
  - fire extinguishers meet the intended function,
  - safety items (eye wash, shower, hazardous disposal place/containers, ventilation, etc.) are available and maintained,
  - exits are accessible with grilles unlocked during learning sessions |

CRITERION 7 – INSTITUTIONAL SUPPORT AND FINANCIAL RESOURCES

ASSESMENT ATTRIBUTE   **GUIDE FOR EVALUATION**

Adequacy of institutional financial resources to ensure program's sustainability and meeting of recurring as well as developmental requirements.	The institute seeking accreditation must have adequate financial resources for sustaining the program. **Performance indicators:** • Availability of sufficient financial resources and their proficient management • Continued financial commitment in addition to creating conducive environment. • Sufficient resources for hiring and retaining qualified faculty members in sufficient numbers • Sufficient resources for the availability of infrastructure in terms of classrooms, well-equipped labs and well stocked library • The program is economically viable to ensure its sustainability and future enhancements. **Examples of Related Evidence:** • Income and expenditure details which can be extracted from the approved budgets for the current as well as two previous, but consecutive, financial years. • In case of new programs, only one or two budgetary figures will suffice. • Copies of the approved budgets and last-year audited accounts
Evidence of continued financial commitment in the form of increasing endowment and recurring /development budget since last accreditation visit	The institute should be forward looking and must be viewing and planning for upgradation and future enhancements in its facilities. **Examples of Related Evidence:** • Developmental allocation and expenditure details which can be extracted from the approved budgets for the current as well as two previous, but consecutive, financial years. • Copies of the approved budgets and last-year audited accounts
Provision of funding for R&D pursuits and presentations/publication of research papers	The program must demonstrate avenues of R&D pursuits to enable students and faculty transform their innovative and original thinking into practice. **Examples of Related Evidence:** • Approved budgets and audited accounts for current and previous years showing R&D budget allocations and spending

CRITERION 8 - CONTINUOUS QUALITY IMPROVEMENT

ASSESMENT ATTRIBUTE   **GUIDE FOR EVALUATION**

CQI process is well documented and institutionalized at all levels (CLOs, PLOs and PEOs)	**Performance indicators:** • The institute has a well-established and active QMS system with well documented CQI processes for all the accreditation criteria. • CQI processes for CLO, PLO and PEOs are also be properly documented and also being practiced. **Examples of Related Evidence:** • Documentary evidence of effectiveness of CQI Processes including corrective actions as a result of evaluation at different levels
Actions taken / implementation plans worked out to address the concerns/ weaknesses identified in the last accreditation visit report.	The HEIs should take every measure to address all the concerns/weaknesses identified in the last accreditation visit report. **Examples of Related Evidence:** • Documentation and evidence showing actions taken by the program / institution to address the concerns / weaknesses identified in the last accreditation visit report • Implementation plans for the shortcoming not fully compliant at present (allowed only for minor ones)
Improvement in Faculty Strength / Qualifications since last accreditation visit	Various measures must be taken by the institute / program for its faculty development and improvement of their qualifications. The outcome of these measures in terms of faculty strength, i.e., improvement in qualifications, experience, diversity of specializations, trainings; and/or increased number of faculty members in each area of specializations being offered in the program must be evident. **Examples of Related Evidence:** • Faculty comparison table between present and during last visit showing their qualifications
Improvement in Student-Teacher Ratio since last accreditation visit	This aspect is very critical to provide better interaction and consultation / guidance to students, and must show improvement, especially if this ratio was on the higher side during the last accreditation visit.
Continuation of Faculty Publications, R&D and Consultancy activities	The program ensures that its faculty is motivated and is striving for contribution in their field of expertise. **Performance indicators:** • An active and competent program faculty evident from ○ Continuity of faculty research publications, ○ Successful pursuit of R&D activities with external donor agencies ○ Engagement in providing consultancy services to local / international industry
Addition of any new facilities, i.e. infrastructure, lab equipment, teaching aids, etc. to assist in the	The institute / program management's must show commitment to strive for continuous quality improvement of the program. **Performance indicators:** • Addition of any new facilities, i.e. infrastructure, lab

attainment of program objectives / outcomes, since last accreditation visit	equipment, teaching aids, etc. since the last accreditation visit, to assist in the attainment of program objectives / outcomes
New initiative(s) taken since last accreditation visit (including but not limited to OBE implementation, content delivery, assessment and evaluation processes, etc.)	Any new initiative(s) taken since the last accreditation visit (including but not limited to OBE implementation, content delivery, assessment and evaluation processes, etc.) should also be explored by the PEVs as they may also help improve the quality of the program.

CRITERION 9 – INDUSTRIAL LINKAGES

ASSESMENT ATTRIBUTE	GUIDE FOR EVALUATION
Existence of active Industrial Advisory Board/Committee	**Performance indicators:** • The HEI has an active Industrial Advisory Board. Meetings of the board are held at regular intervals. • Minutes of the meetings are issued and mechanism of implementation is present. **Examples of Related Evidence:** • Previous Meeting minutes of Industrial Advisory Board
Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs	**Performance indicators:** • A mechanism for collection of feedback from industry is in place and this feedback is an essential part of curriculum review process. • Industry feedback is used to determine the attainment of Program Educational Objectives and a mechanism is in place.
Opportunities for students to acquire industrial experience via internship and existence of Industry-Liaison office	**Performance indicators:** • An internship is part of the curriculum. • Industrial Liaison Office is functional and taking part in arranging internships for students. • A formal mechanism for the evaluation of learning during the internships is in place.

Design projects sponsored / supervised jointly by Industry Professionals and faculty members	**Performance indicators:** • Students are encouraged to have design projects with the involvement / sponsorship / supervision of industry. • Professionals from industry are included in supervision and/or assessment of design projects.
Faculty members involved in design / supervision / consultancy role with the industry in the execution of industrial projects	**Performance indicators:** • Sufficient industrial collaborations exist and faculty is involved in industrial and R&D projects • Faculty members are encouraged to get involved in training / design / supervision / consultancy role with industry.

Pakistan Engineering Council

Program Evaluation Report
(Accreditation/Re-accreditation)
PROGRAM EVALUATION WORKSHEET
RUBRICS defining D, W and C

1) For all accreditation criteria, the findings shall be recorded under 'Compliance' column as: 'Y' for Compliance '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.**

Number Legend Used:

1	**"1"** appearing in any assessment attribute signifies a **Deficiency (D)** towards the main criteria
2	**"2"** appearing in any assessment attribute signifies a **Weakness (W)** towards the main criteria
3	**"3"** appearing in any assessment attribute signifies a **Concern (C)** towards the main criteria
4	*"4" appearing in any sub-criterion signifies an **Opportunity for Improvement (OFI)** towards 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	Institute Vision and mission are not defined.	**(D1)**
		defined but not published	**(W3)**
		not published as public document	**(C3)**
ii.	PEOs are defined, consistent with the Vision / Mission, and well publicized.	D: PEOs are not defined.	**(D1)**
		W: Reasonably defined but not aligned with V&M	**(W3)**
		i) There are some issues with PEOs' alignment with Vision/Mission; OR ii) The PEOs are too narrow or too broad; OR iii)Not very well published as public documents	**(C3)**
iii.	Involvement of stakeholders in formulation / review of PEOs.	System does not have any mechanism for involvement of stakeholders	**(D2)**
		Process partially defined AND no formal evidence showing involvement of stakeholders so far	**(W3)**

		informal involvement of stakeholders seen	**(C3)**
iv.	A process in place to evaluate the attainment of PEOs.	No process defined	**(D2)**
		Process is defined but assessment tools/KPIs are non-existent	**(W3)**
		i) Assessment tools/KPIs defined but are inadequate; OR ii) Evaluation mechanism and allocation of responsibilities of entities are not clear / confusing	**(C3)**
v.	Evaluation results used for continuous quality improvement of the program	CQI process at PEO level is not defined	**(D2)**
		i) Assessment data gathered, but no analysis and evaluation carried out; OR ii) Corrective actions based on evaluation results are not identified and no implementation plan worked out	**(W2)**
		Corrective actions are not implemented OR only partially implemented.	**(C3)**
	Criterion-2: Program Learning Outcomes (PLOs)		
i.	PLOs are well-defined and publicized.	Not defined at all	**(D1)**
		Defined but not approved from the concerned Statutory Bodies	**(W2)**
		Insufficient justification of fulfilment of Graduate Attributes defined by EAB	**(C3)**
ii.	PLOs are appropriately linked to PEOs	Not linked	**(D2)**
		Linked but not supportive to all PEOs	**(W3)**
		Some key points in PEOs are not addressed in PLOs	**(C3)**
iii.	PLOs encompass all the required Graduate Attributes as defined in EAB Accreditation Manual	Do not encompass the PEC GAs in totality	**(D1)**
		partially encompass	**(W2)**
iv.	Mapping of Courses to PLOs	No mapping is given.	**(D1)**
		Mapping is there but all PLOs are not adequately supported.	**(W3)**
		Mapping does not cover all the three Learning domains i.e. Cognitive, Psychomotor and Affective	**(C3)**
v.	Teaching-learning and assessment methods appropriate and supportive of the attainment of PLOs	Teaching/ assessment methods not appropriate /designed for attainment of PLOs.	**(D2)**
		Partially supportive.	**(W3)**
		Assessment methodologies both direct and indirect are in place but not appropriately applied.	**(C3)**
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).	KPIs are not defined.	**(D1)**
		KPIs are not well defined or assessment is not carried out at the appropriate taxonomy	**(W2)**
		KPIs are well defined but assessment is not carried out at cohort level	**(C3)**
vii.	Process in place by which assessment results are applied to further refine the	CQI process for PLOs is not defined.	**(D2)**
		i) CQI process defined but not institutionalized; OR	**(W3)**

		assessment mechanism and/or redefine the program outcomes, thus leading to continuous improvement of the program	ii) No analysis carried out	(blue)
			Evaluation carried out but no corrective actions taken.	(C3)
	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.	Curriculum deviates significantly from HEC/PEC curriculum guidelines or essential breadth and depth courses are missing from the curriculum	(D1)
			i) 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 ii) Coverage of Design aspects / projects	(W2)
			Coverage of breadth contents is not adequate.	(C3)
ii.		Curriculum provides balanced coverage of engineering and non-engineering contents in-line with National Engineering Qualifications Framework (NEQF)	Curriculum deviates significantly from NEQF;	(D1)
			Curriculum broadly conforms to NEQF but lacks certain important courses in more than one curricular domain (i.e. Math, Natural Sciences, Humanities, Management, Engineering);	(W2)
			Curriculum broadly conforms to NEQF but lacks certain important courses in any one curricular domain	(C3)
iii.		Adequate exposure to Complex Engineering Problems (CEPs) and Activities	No exposure	(D1)
			i) Limited exposure to CEPs in courses and labs; OR ii) Limited exposure to CEPs in FYPs.	(W2)
			Reasonable exposure in FYPs but not adequately covered in some courses/labs	(C3)
iv.		Availability of program specific well equipped labs to supplement theoretical knowledge/class room learning.	Essential Labs are missing or seriously deficient in the required lab equipment.	(D1)
			Most of the labs are in place, some are deficient in equipment or numbers of workstations in most of the labs are not adequate to meet student demands.	(W3)
			All the required labs are there, a few have limited number of workstations hindering adequate hand-on exposure	(C3)
v.		Lab work supporting the attainment of the required skills and its assessment mechanism	There is hardly any opportunity to develop the required skills and/or no appropriate mechanism in place to assess the skill attainment level.	(D2)
			Students are offered limited hands-on opportunity to develop the required skills; assessment mechanism is generally not appropriate.	(W3)
			i) One or two labs lack the focus on developing relevant skills; OR ii) The assessment mechanism lacks rigor or appropriateness	(C3)
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	CLOs not defined for most of the courses.	(D1)
			CLOs not defined for some courses, inappropriate Taxonomy level and their mapping to relevant PLOs.	(W3)
			CLOs' action verbs not commensurate with taxonomy levels indicated, lacking clarity in mapping to PLOs.	(C3)

vii.	Benchmarking of curriculum carried out with National / International best practices – Washington Accord (WA) recognized programs	No benchmarking carried out	**(D3)**
		Benchmarking carried out but not in-line with best practices	**(W4)**
		Benchmarking carried out only at broad domain levels, i.e. natural sciences, engineering foundation, breadth and depth courses but not at course level and/or no analysis done.	**(C4)**
viii.	Formal involvement of industry in curriculum development / revision	No involvement from industry	**(D2)**
		Process in place but not regularly practiced	**(W3)**
		Informal industry involvement at departmental level.	**(C4)**
ix.	Employment of other aspects (supplementary tools and practices) of student learning such as tutorial system and seminar / workshops, etc. to enhance student learning, in addition to regular classroom interaction and lab experimentation	No employment of other aspects of student learning.	**(D3)**
		Formal mechanism is there but not practiced.	**(W3)**
		Some other aspects of student learning are practiced.	**(C4)**
x.	Exposure to cooperative learning through supervised internship program with formal feedback from the employer	No internship program in place.	**(D3)**
		Only limited Internships are arranged, no feedback mechanism is evident.	**(W4)**
		Internships are arranged, with some feedback but no analysis for CQI	**(C4)**
xi.	Sufficient opportunities to invoke intuitiveness and originality of thought through Problem Based Learning (PBL), Design Projects and Open-Ended labs.	No such opportunities exist	**(D2)**
		Few instructors practice PBL and/or give design projects in courses but not formalized by the department.	**(W3)**
		The formalized use of Design projects, Open-Ended labs and PBL is there but limited in number.	**(C3)**
xii.	Assessment of various learning outcomes (PLOs/CLOs) employing appropriate direct / indirect methods.	Inappropriate Assessment methods used for evaluation of CLOs/PLOs.	**(D2)**
		Assessment in knowledge domain usually appropriate but at times lacks rigor; OR Lacks assessment in any other domain.	**(W3)**
		Use of inappropriate rubrics for assessment of skills and attitude domains.	**(C3)**
	Criterion-4: Students		
i.	Admission Criteria meets / exceeds minimum eligibility criteria prescribed by PEC Regulations.	Not in compliance with PEC regulations.	**(D1)**
ii.	Annual intake is in-line with the maximum intake allowed by EAB for the program.	Not in compliance with PEC regulations.	**(D2)**
iii.	Well documented policy on transfer of students only from other accredited program restricting transfer of less than	Students transferred from non-accredited programs; or student transfer allowed from accredited program but with more than 50% Cr. Hrs. transferred.	**(D2)**

	50% of Cr Hrs required for the degree.	No documented transfer policy	**(W3)**
		Policy in place but not strictly adhered to.	**(C4)**
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.	No regular office hours, and no efforts made to provide off-class counselling.	**(D3)**
		Office hours not announced and limited tutorials.	**(W4)**
		Office hours announced but not fully observed.	**(C4)**
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.	No provision available for academic and career counseling of students.	**(D2)**
		Student counseling available but limited to academic matters.	**(W3)**
		Student counselling effective in limited areas.	**(C4)**
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)	Unmanageable class size / lab groups.	**(D2)**
		Poorly manageable class size /lab groups.	**(W3)**
		Manageable class size/lab size but exceeding desired limits	**(C4)**
vii.	Manageable semester academic load (i.e. 15-18 Cr. Hrs)	Unmanageable semester academic load.	**(D2)**
		Poorly manageable semester academic load	**(W3)**
		manageable semester academic load but exceeding desired limits	**(C4)**
viii.	Completion of courses as evident from course-files and through student feedback	Course files not maintained or majority course completion is less than 70%	**(D1)**
		Course files partially maintained or majority course completion is less than 80%	**(W2)**
		Course files maintained and few courses have less than 90% completed.	**(C3)**
ix.	Students' participation in national / international engineering exhibitions and / or competitions, and facilitation by program for such participations	No participation in any event.	**(D3)**
		Limited participation	**(W3)**
		Participation in national events but not in international events	**(C4)**
x.	Quality of process to evaluate student performance and suggest / take corrective measures	No process is in place.	**(D2)**
		Process outlined but never followed.	**(W3)**
		Assessment is carried out but limited corrective actions are taken	**(C3)**
	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)	student-teacher ratio 30+:1	**(D1)**
		student-teacher ratio 25-30:1	**(W2)**
		student-teacher ratio 20-25:1	**(C3)**
ii.	Balanced faculty having appropriate	Less than 3 PhDs.	**(D2)**

	qualifications (min. postgraduate with a reasonable percentage holding PhD) to cover all areas of program curriculum	Insufficient faculty in core areas of the program	**(W3)**
		faculty deficient in any one core area of the program	**(C3)**
iii.	Formal mechanism for faculty training and mentoring on pedagogical skills including OBE concepts and implementation methodologies.	No formal training	**(D3)**
		Limited formal training not covering all areas.	**(W4)**
iv.	Effectiveness of faculty development program to ensure their professional growth and retention.	No faculty development program	**(D3)**
		Limited faculty development program	**(W4)**
		FDP is in place but not effective for faculty retention/ growth	**(C4)**
v.	Reasonable faculty workload (as per PEC guidelines) including facilitation to young faculty pursuing higher studies.	Unmanageable faculty workload	**(D2)**
		faculty Workload though manageable but higher than the prescribed range (As defined in the PEC/HEC guidelines) on the average	**(W3)**
		Faculty workload is balanced but no facilitation to young faculty for pursuing higher studies.	**(C4)**
vi.	Continuation of faculty research, publications and sponsored projects from industry/donor agencies, etc.	No faculty research/ publications/ sponsored project in recent years	**(D2)**
		Limited faculty research/publications/ sponsored project in recent years	**(W4)**
		No funding from external donor agencies/industry	**(C4)**
vii.	The program should be headed by a PhD senior faculty in relevant discipline. Reasonable mix of Senior and Junior qualified faculty be ensured.	Program is not headed by a senior PhD	**(D2)**
		The program is headed by an inexperienced PhD faculty or not from the relevant discipline.	**(W3)**
		Majority of the faculty is young and inexperienced	**(C4)**
	Criterion-6: Facilities and Infrastructure		
i.	Adequacy of teaching and learning facilities, e.g. classroom environment and availability of various teaching aids, etc.	Essential infrastructural facilities is very limited in relation to the student population	**(D1)**
		i) Infrastructural facilities are reasonable, but not adequately maintained; OR ii) Most of the facilities are adequate but some have capacity/adequacy issues; OR iii) There is very limited availability of teaching aids in the classrooms / laboratories OR	**(W3)**
		i) Teaching learning environment is not very conducive. ii) Teaching aids are available but quite limited in number and variety;	**(C4)**
ii.	Provision of program specific labs (as	i) The program does not have ALL the required labs	**(D1)**

	per curriculum), workshops, and associated lab equipment for complementing the class / theory work.	for the program; OR ii) The labs are deficient in terms of availability of essential laboratory equipment.	_(green)_
		Fewer number of workstations/ equipment in the labs, thus hindering sufficient hands-on opportunity to the students;	**(W2)**
		i) Non-functional and/or very old equipment of limited use; OR ii) Generally congested lab spaces iii) 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	**(C3)**
iii.	Adequacy of library resources and facilities.	i) 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 ii) 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	**(D2)**
		i) Congested Library Space with inadequate seating capacity; OR ii) No or very limited printing/copying facility; OR iii) No internet connectivity and/or No computers for online access; OR iv) No Digital Library and e-books; OR v) Too few program specific technical books and/ Journals.	**(W3)**
		i) Too few computers and/or very slow internet connectivity. ii) Limited number and variety of latest Reference / Text books (i.e. published in last 5 years) for the program;	**(C4)**
iv.	Provision of sufficient computing facilities and internet access / resources allocated for the program.	Rare computing facilities and no internet access for faculty / students	**(D2)**
		Limited computing and internet access	**(W3)**
		Limited internet access	**(C4)**
v.	Provision and effectiveness of consulting and career placement services provided to the students	Does not exist	**(D3)**
		Exist but with very limited scope and resources.	**(W4)**
		Available but not efficient, rare contribution	**(C4)**
vi.	Adequacy of support facilities such as hostels, sports and recreational centers, health care centers, student centers, and transport facilities	No concept/existence of any support facilities; neither is there any plan for acquiring these.	**(D2)**
		Inadequate facilities; planned for future but not yet approved.	**(W3)**
		Support facilities are available, some adequate and some inadequate; however, their provision / extension	**(C4)**

		is planned and approved.	
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	No awareness about safety, Highly unsafe environment, Not even basic fire-fighting equipment and/or emergency exits.	**(D1)**
		i) Conscious about workplace safety and several safety measures in place. However, no formal policy/procedures for EHS documented; ii) Very Week safety measures inside / around laboratories.	**(W2)**
		i) EHS concept/SOPs exist but occasionally / limited practiced. (No evidence) ii) Safety measures available in labs but needs improvement and proper maintenance.	**(C3)**
	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.	Unstable Institutional financial resources	**(D1)**
		Hardly meeting recurring budgetary expenses AND NO / barely minimal developmental budgetary allocations / roadmap	**(W2)**
		Adequacy of financial resources for the recurring expense But Developmental budget for the program is not adequate / allocated	**(C3)**
ii.	Evidence of continued financial commitment in the form of increasing endowment and recurring /development budget since last accreditation visit.	i) 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 i) Inadequate recurring/ development budget.	**(D2)**
		Financial health in terms of Endowment fund/, investments, etc. maintained but inadequate recurring/ development budget.	**(W3)**
		No improvement in financial health in terms of increased Endowment fund, investments, etc.	**(C4)**
iii.	Provision of funding for R&D pursuits and presentations/publication of research papers	No provision of funding	**(D2)**
		Inadequate Funding, and that too mostly not utilized because of no motivations / encouragement for Publications and Research projects	**(W3)**
		Some funding for R&D pursuits and publications (in the last 2-3 years)	**(C4)**
	Criterion-8: Continuous Quality Improvement (CQI)		
i.	CQI process is well documented and institutionalized at all levels (CLOs, PLOs and PEOs).	CQI process / mechanism is not in place	**(D1)**
		CQI is defined and institutionalized but not practiced.	**(W2)**
		CQI is well documented, institutionalized and practiced at all levels, but some of the corrective actions are not taken.	**(C3)**
ii.	Actions taken / implementation plans worked out to address the concerns/weaknesses identified in the last accreditation visit report.	No actions are taken and no implementation plans are evident.	**(D2)**
		Only partial actions are taken (less than 50%) and/or implementation plans are unsatisfactory.	**(W3)**
		The major actions are taken (more than 50% but less	**(C3)**

		than 75%) and implementation plans are partially satisfactory.	
iii.	Improvement in Faculty Strength / Qualifications since last accreditation visit	Insufficient improvement (less than 50%) in Faculty Strength/Qualifications, if required.	**(D2)**
		Partial improvement (more than 50% but less than 75%) in Faculty Strength/Qualifications since last accreditation visit.	**(W3)**
		Significant improvement (more than 75% but less than 90%) in Faculty Strength/Qualifications since last accreditation visit.	**(C4)**
iv.	Improvement in Student-Teacher Ratio since last accreditation visit	Insufficient improvement (less than 25%) in Student-Teacher Ratio, if required.	**(D3)**
		Partial improvement (more than 25% but less than 50%) in Student-Teacher Ratio since last accreditation visit.	**(W3)**
		Significant improvement (more than 50%) in Student-Teacher Ratio since last accreditation visit.	**(C4)**
v.	Continuation of Faculty Publications, R&D and Consultancy activities	No publications / R&D /Consultancy projects since last visit	**(D2)**
		Limited research publications / R&D / consultancy activities.	**(W3)**
		Lack of Journal publications and /or funded R&D / consultancy activities.	**(C4)**
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	No addition of new facilities.	**(D3)**
		Limited addition of new facilities.	**(W3)**
		Some addition of new facilities , yet the specific	**(C4)**
vii.	New initiative(s) taken since last accreditation visit (including but not limited to OBE implementation, content delivery, assessment and evaluation processes, etc.)	No new initiatives taken.	**(D3)**
		No significant new initiatives taken.	**(W3)**
		Few significant new initiatives taken.	**(C4)**
	Criterion-9: Industrial Linkages		
i.	Existence of active Industrial Advisory Board/Committee	No Industrial Advisory Board exists.	**(D2)**
		Industrial Advisory Board exists but is inactive.	**(W3)**
		Meets irregularly.	**(C4)**
ii.	Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs	No formal mechanism in place.	**(D2)**
		The formal mechanism is in place but the assessment tools / methods do not correlate with the PEOs.	**(W3)**
		The formal mechanism exists and its assessment tools / methods also correlates with the PEOs; however, effective analysis not periodically performed.	**(C3)**
iii.	Opportunities for students to acquire industrial experience via internship and existence of Industry-Liaison office	No dedicated Industry-Liaison office exists.	**(D3)**
		A dedicated Industry-Liaison office exists, but plays no role in arranging internships.	**(W3)**

		A dedicated Industry-Liaison office exists, but its effectiveness is limited.	**(C4)**
iv.	Design projects sponsored / supervised jointly by Industry Professionals and faculty members	No sponsored design projects and no joint supervision.	**(D3)**
		No sponsored design projects but limited joint supervision.	**(W3)**
		Industrial linkages exist but limited sponsored design projects.	**(C4)**
v.	Faculty members involved in design / supervision / consultancy role with the industry in the execution of industrial projects	No faculty involvement with industry, and no policy exists.	**(D3)**
		Irregular and Limited faculty involvement with industry.	**(W3)**
		Regular but limited faculty involvement with industry.	**(C4)**

Pakistan Engineering Council
Program Evaluation Report
(Accreditation/Re-accreditation)
PROGRAM EVALUATION WORKSHEET
< HEI Name>
< Program >
< Date of Visit >

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.

Sr. No.	Criteria	Compliance Level	Observations and Remarks For Non-Compliance
	Criterion-1: **Program Educational Objectives** **(PEOs)**		
i.	Well-defined and published Institute Vision and Mission		
ii.	PEOs are defined, consistent with the Vision / Mission, and well publicized.		
iii.	Involvement of stakeholders in formulation / review of PEOs.		
iv.	A process in place to evaluate the attainment of PEOs.		
v.	Evaluation results used for continual improvement of the program		
	Criterion-2: Program Learning Outcomes (PLOs)		
i.	PLOs are well-defined and publicized.		
ii.	PLOs are appropriately linked to PEOs		
iii.	PLOs encompass all the required Graduate Attributes as defined in EAB Accreditation Manual		

iv.	Mapping of Courses to PLOs		
v.	Teaching-learning and assessment methods appropriate and supportive to the attainment of PLOs		
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).		
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		
	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.		
ii.	Curriculum provides balanced coverage of engineering and non-engineering contents in-line with National Engineering Qualifications Framework (NEQF)		
iii.	Adequate exposure to Complex Engineering Problems (CEPs) and Activities		
iv.	Availability of program specific well equipped labs to supplement theoretical knowledge/class room learning.		
v.	Lab work supporting the attainment of the required skills and its assessment mechanism		
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		
vii.	Benchmarking of curriculum carried out with National / International best practices – Washington Accord (WA) recognized programs		
viii.	Formal involvement of industry in curriculum development / revision		

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		
x.	Exposure to cooperative learning through supervised internship program with formal feedback from the employer		
xi.	Sufficient opportunities to invoke intuitiveness and originality of thought through Problem Based Learning (PBL), Design Projects and Open-Ended labs.		
xii.	Assessment of various learning outcomes (PLOs/CLOs) employing appropriate direct / indirect methods.		
	Criterion-4: Students		
i.	Admission Criteria meets / exceeds minimum eligibility criteria prescribed by PEC Regulations.		
ii.	Annual intake is in-line with the maximum intake allowed by EAB for the program.		
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.		
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.		
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.		
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)		
vii.	Manageable semester academic load (i.e. 15-18 Cr. Hrs)		

viii.	Completion of courses as evident from course-files and through student feedback		
ix.	Students' participation in national / international engineering exhibitions and / or competitions, and facilitation by program for such participations		
x.	Quality of process to evaluate student performance and suggest / take corrective measures		
	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)		
ii.	Balanced faculty having appropriate qualifications (min. postgraduate with a reasonable percentage holding PhD) to cover all areas of program curriculum		
iii.	Formal mechanism for faculty training and mentoring on pedagogical skills including OBE concepts and implementation methodologies.		
iv.	Effectiveness of faculty development program to ensure their professional growth and retention.		
v.	Reasonable faculty workload (as per PEC guidelines) including facilitation to young faculty pursuing higher studies.		
vi.	Continuation of faculty research, publications and sponsored projects from industry/donor agencies, etc.		
vii.	The program should be headed by a PhD senior faculty in relevant discipline. Reasonable mix of Senior and Junior qualified faculty be ensured.		
	Criterion-6: Facilities and Infrastructure		
i.	Adequacy of teaching and learning facilities, e.g. classroom environment and availability of various teaching aids, etc.		
ii.	Provision of program specific labs (as per curriculum), workshops, and associated lab equipment for complementing the class / theory work.		

iii.	Adequacy of library resources and facilities.		
iv.	Provision of sufficient computing facilities and internet access / resources allocated for the program.		
v.	Provision and effectiveness of consulting and career placement services provided to the students		
vi.	Adequacy of support facilities such as hostels, sports and recreational centers, health care centers, student centers, and transport facilities		
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		
	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.		
ii.	Evidence of continued financial commitment in the form of increasing endowment and recurring /development budget since last accreditation visit.		
iii.	Provision of funding for R&D pursuits and presentations/publication of research papers		
	Criterion-8: Continuous Quality Improvement (CQI)		
i.	CQI process is well documented and institutionalized at all levels (CLOs, PLOs and PEOs).		
ii.	Actions taken / implementation plans worked out to address the concerns/weaknesses identified in the last accreditation visit report.		
iii.	Improvement in Faculty Strength / Qualifications since last accreditation visit		
iv.	Improvement in Student-Teacher Ratio since last accreditation visit		
v.	Continuation of Faculty Publications, R&D and 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		
vii.	New initiative(s) taken since last accreditation visit (including but not limited to OBE implementation, content delivery, assessment and evaluation processes, etc.)		
	Criterion-9: Industrial Linkages		
i.	Existence of active Industrial Advisory Board/Committee		
ii.	Formal mechanism for seeking feedback from Industry and its analysis for the attainment of PEOs		
iii.	Opportunities for students to acquire industrial experience via internship and existence of Industry-Liaison office		
iv.	Design projects sponsored / supervised jointly by Industry Professionals and faculty members		
v.	Faculty members involved in design / supervision / consultancy role with the industry in the execution of industrial projects		

RECOMMENDATIONS BY VISITATION TEAM

The institute had applied for accreditation under the new Accreditation Manual-2014, i.e. as a Level II institute, practicing Outcome-Based Education system. Based on the OBE system of accreditation, the team evaluated the program of << program name >> for its compliance to the nine (9) accreditation criteria and found some deficiencies/weaknesses/concerns primarily related to the compliance of << List of Criteria >>

As a result, the team recommends to EAB that the program may be accredited as a Level II institute under the new Accreditation Manual 2014 for a period of <_____> years, i.e. for intake batches<_____>.

Signatures:

_____

Name of Subject Expert: Expert < >Engineering

_____

Name of Subject Expert: Expert < >Engineering

_____

Name of Industrial Expert: Expert < >Engineering

_____

Name of PEC Rep: PEC Representative

Dated:_____

<u>Exemplar</u>

Pakistan Engineering Council
Program Evaluation Report (Accreditation/Re-accreditation)

PROGRAMME EVALUATOR SUMMARY

<Name of HEI>
<Name of the Program>
<Visit Type>
<Date>

1. OVERVIEW

The visitation team appointed by Engineering Accreditation Board (EAB) of Pakistan Engineering Council (PEC) conducted a two-day accreditation visit to <Name of HEI>, to evaluate UG program of <Name of program> from <date>. A pre-visit meeting was held on <date> to exchange findings of the Program Evaluation team members (PEVs) based on the review of Self-Assessment Report (SAR) of the program submitted by the institute and previous evaluation report of the last accreditation visitation team. During the pre-visit meeting, a list of queries was consolidated to seek further clarification and understanding on the program. Also based on the study of SAR, some aspects related specifically to OBE and CQI implementations were identified as requiring in-depth study of the related documents for evidences. Subsequently specific documents / evidences to be examined during the visit were also chalked out. Based on these discussions, the schedule of activities for the conduct of first day visit was slightly modified and communicated to <name>, the focal person appointed by the Institute for the conduct of visit.

During visit, the visitation team met with <head of the institution>. Briefing on the institution and the program was given by the <name>. The program evaluators also visited several program facilities, i.e. classrooms, conference room, laboratories, library, auditorium, mosque and various sports facilities. Apart from comprehensive review of documents and evidences pertaining to various accreditation criteria, the team also held meetings and interviews with all the stakeholders such as students, faculty, staff members, and alumni.

Based on detailed visit of the facilities and thorough review of the documents / evidences, following are highlights of the findings by the Program Evaluation Team about the program:

i. The depth and breadth required in the curriculum is there as far as the contents and its delivery is concerned. Evaluation of students' academic performances is also at an adequate level but the assessment methodologies for PLO attainment are limited in nature and scope. A couple of concerns / weaknesses related to the exposure to lab work and for the inclusion of course and faculty strength related to water resources have been identified.

ii. QMS is in place and is centrally administered by <HEI>.

iii. Procedures and policies for implementing CQI at course and curriculum levels are in place and being practiced; however, there are weaknesses in defining and implementing CQI at program level.

iv. The program has recently started its shift-over towards OBE, and is in process of defining and refining various aspects related to OBE design and its implementation. Hence, a number of weaknesses have been found in various facets of OBE and OBA methodologies and their implementations.

Overall, the Program Evaluation team found no deficiency as far as compliance to all 9 accreditation criteria is concerned. However, there are a number of weaknesses related primarily to non/partial compliance with several sub-clauses of a number of main criteria, these are more pronounced specifically in Criteria-1: Program Educational Objectives (PEOs), Criteria-2: Program Learning Outcomes (PLOs) and Criteria-8: Continuous Quality Improvement (CQI).

2. GENERAL INFORMATION

<HEI> was established in ------- as--------, and later was upgraded to College and shifted at its present location ----- in -------. The functions of the institute aimed at producing professional ----- - Engineers for ----

<Name of program> has a long history of accreditation by PEC and has so far graduated ---- Engineers. The last accreditation visit was conducted by PEC in <date>, and the program was subsequently re-accredited for ?-years, i.e. for intake batches ---, --- and ----.

The program is offered as a full-time program for four years duration with pre-admission qualification of F.Sc. (Pre-Engineering) or equivalent with a minimum of 60% marks followed by --- entry test for civilian students. The bases for open merit determination for civilian students are:

I.   ------ Entry Test   ---%
II.   HSSC / A-Level / Equivalent   ---%
III. SSC / O-Level   ---%

The summary of total enrolled students and programs faculty is given below:

Sr. No.	Intake Batch	No. of Enrolled Students	No. of Sections
1	2011	---	-
2	2012	---	-
3	2013	---	-
4	2014	---	-
TOTAL		---	-

Note: Student Data as per Table --- on Page --- of SAR

	Permanent Faculty			Visiting Faculty	
	Ph.D	M.Sc	B.E/B.Sc	Ph.D	M.Sc
Core Engg. Subjects	?+?**	?+?**	-	-	1
Shared Engg. Subjects	-	-	-	-	-

Note: Faculty List as per Tables --- on Page --- of SAR
** Non-countable engineering faculty (as per Sec. 3.2.5.2 of EAB's Manual 2014)

The department has been increasing its student intake for the past 3-4 years without taking formal approval from PEC. Now in order to regularize its intake strength, <HEI> has formally applied to PEC for conducting a zero-visit for enhancement of its student intake. Considering this, computation of student-teacher ratio is carried out in the following for two cases, i.e. one considering the present student strength and the other considering the student intake of the last year as the reference intake strength.

Computation of Student-Teacher Ratio:

1) Considering Present Student Strength:

   Present Student Strength = 579
   Engineering Faculty:
             Countable = 21
         Non-Countable = 4

      i-   **Student : Teacher Ratio = 579/21 = 28:1**
         (as per guidelines of Sec 3.2.5.2 of Accr. Manual-2014)

      ii-   **Student : Teacher Ratio = 579/(21+4) = 23:1**
         (Relaxing guidelines of Sec 3.2.5.2 of Accr. Manual-2014)

2) Considering annual intake of 180 students :

   Expected Student Strength = 180*4 = 720
   Engineering Faculty:
             Countable = 21
         Non-Countable = 4

      i-   **Student : Teacher Ratio = 720/21 = 34:1**
         (as per guidelines of Sec 3.2.5.2 of Accr. Manual-2014)

      ii-   **Student : Teacher Ratio = 720/(21+4) = 29:1**
         (Relaxing guidelines of Sec 3.2.5.2 of Accr. Manual-2014)

3. GENERAL OBSERVATIONS

Criterion-1: Program Educational Objectives (PEOs)

<HEI> has well-defined vision and mission statements. <HEI> has also defined a mission statement for its Civil Engineering program. In addition, the department has articulated PEOs for its Civil Engineering program, which has been publicized to some extent within the department through posters and postings on department notice-boards. However, the statements of these PEOs are more like restatements of Program Learning Outcomes (PLOs), indicating that here exists a general lack of understanding in the meaning of PEOs and EAB's requirements in this regard. Thus there is a need to revise these PEOs appropriately, in consistency with the program mission, so that they should reflect the targeted professional and career accomplishments of the program graduates after 4 to 5 years of graduation.

The process of formulating PEOs should involve both internal as well as external stakeholders, and should incorporate their formal feedback. There is little evidence of all stakeholders' involvement in defining PEOs. It is recommended that all the stakeholders should be involved in developing PEOs.

As far the formal process for assessing and evaluating the attainment of PEOs, at present there is no well-defined process and support administrative setup for the Civil Engineering program. The visitation team was informed that the *Alumni* and *Employer Surveys* currently being conducted by <HEI> are used to measure PEO attainment. However, the format of these *Survey Forms* is quite generic and not program specific, so these cannot provide useful information about the attainment of PEOs in an objective manner. *Key-Performance Indicators* (KPIs) for the assessment and evaluation

of PEOs are also yet to be defined. <HEI> needs to rationally define KPIs and also develop Questionnaire / Survey Forms to objectively assess these specific performance indicators.

<HEI> has only recently started the shift towards OBE and has made some reasonable efforts in this regard; however, evaluation of Criterion-1 being one of the prime focuses of OBE & OBA, <u>the team has found a number of weaknesses in compliance to this criterion</u>.

Criterion-2: Program Learning Outcomes (PLOs)

<HEI> has adopted all the 12 graduate attributes outlined in EAB's Accreditation Manual-2014 as the Learning Outcomes for its --- Engineering program. The PLOs have been locally publicized within the department through posters and notice-boards; however, they need to be well-publicized, e.g. through <HEI> website, prospectus, etc. The mapping of these PLOs to PEOs has also been carried out reasonably.

PLOs mapping on curriculum courses has been carried out, and the efforts have also been made to define specific CLOs for each subject course. However, there are weaknesses in these course-PLO mappings in terms of PLO contributions of courses and the extent of coverage for higher taxonomy levels in some PLOs, which call for a critical review of these assignments. Similarly, a closer look at the CLOs defined for various courses shows inconsistency in the use of appropriate action verbs commensurate with the targeted taxonomy levels.

As far a formal process of assessment and evaluation of PLOs being in place, there are evidences that parts of it are being practiced; however, it does not provide comprehensive coverage of all facets of OBA. In particular, KPIs are though defined for cohort level attainment of CLOs and PLOs, but there is lack of clarity about KPIs used for assessing attainment of PLOs for individual student at course level as well as at program level. A MS Excel based program, developed by ---- , is currently being used for assessing the attainment of individual and cohort level CLOs, but assessment of PLO attainment for the course is neither yet covered nor was the departmental faculty/management clear about the policy and the process. The use of Rubrics for the assessment of complex outcomes which are not easily quantifiable, e.g. communication skills, teamwork, lifelong-learning, etc. is not well understood by the faculty and calls for more rounds of training. Similarly more clarity is needed in the design and use of indirect tools for assessment of PLOs.

Efforts have been made to get the faculty and students on board about the OBE methodologies. Several workshops have been conducted in this regard since Fall 2014. Course instructors were asked to chalk out CLOs for their respective courses and also suggest the mapping of these CLOs to the appropriate PLOs. These mappings were discussed in the Departmental Board of Studies (BOS) and then finalized. However, the faculty members interviewed during the accreditation visit were found not being well acquainted with OBE concepts, especially in terms of defining CLOs with appropriate taxonomy levels, the range of direct-vs-indirect assessment tools appropriate for their courses, use of Rubrics and the assessment methodologies for Psychomotor and Affective domains, and defining/formulating a complex problem in light of PEC manual 2014 guidelines. Faculty members still require more training in the implementation of OBE system. There is a need to put together an effective and comprehensive mechanism to assess the attainment of the CLOs and the PLOs using formative / summative approaches.

As the evaluation of Criterion-2 is a major focus of outcomes-based education system, <u>the team has determined that the program has a number of weaknesses in demonstrating compliance to this criterion</u>.

Criterion-3: Curriculum and Learning Process

<HEI> being one of the oldest ---- Engineering program in the country has well developed --- Engineering Curriculum. The curriculum is bench marked with NCRC of HEC, and is more or less same as that of ---- Engineering program at <HEI>. About 35% of courses are related to allied subjects, while about 65% are related to core field (---- engineering). However visitation team suggests that the courses of ---- should be made part of compulsory curriculum, or it should be

offered on regular basis. Similarly important topics like == should be made a part of a compulsory subject, rather than that of an elective course.

CLOs for each subject have been formulated and mapped with the PLOs. Mechanism of CLO & PLO accomplishment for individual student, and for cohort need to be further improved. Complex engineering problems are being defined by individual faculty member for his/her relevant subject, however, understanding of complex engineering problem and complex activity need to be further strengthened in light of guidelines provided in EAB's manual of accreditation. Use of rubrics for the assessment is quite limited, and that too needs improvement. Specifically rubrics for the assessment of final year projects though have been drafted but have some basic flaws that need to be rectified.

As far the availability of labs is concerned, sufficient numbers of spacious labs are present covering all branches of ==== Engineering, including ====, ====, ====, and ====. Need for up-gradation / modernization of lab equipment was highlighted in the previous visit report, and has yet to be completely met. There is a need to modernize all the labs by adding new equipment and replacing the out of order/outdated/obsolete ones.

One of the prominent features of lab facilities is the *Display Center* housing samples of various == engineering materials. It has plumbing fixtures, steel reinforcement (in caged form), various types of timber (wood), glass, artificial wood (MDF, ply boards, laminations), ceramic tiles, marble tiles, bathrooms fittings, doors, windows, etc. Visit of this display center provides first-hand knowledge to young engineers with the properties and characteristic of various building materials to be encountered in the field.

The team has observed no deficiency in the curriculum; however, there are a few minor weaknesses and a few concerns which needs to be addressed. In addition, a observations have been made for further improvement of the program.

Criterion-4: Students

Student induction has been in line with the basic criteria laid down by PEC, i.e. minimum of 60% marks in FSc (pre-engineering). However, the program intake has been increasing over the past few years, with the latest batch comprising of 187 students, resulting in student:teacher ratio exceeding the maximum limit set by EAB. This has resulted into larger class sizes, as high as 55 per class and lab group of up-to 10 student per group. Proportionate increase in the number of work stations in the labs has not been made.

Interaction with the students showed that they are generally satisfied with facilities and the availability of instructors for off-class guidance.

The team has observed a reasonable degree of compliance to this criterion; however, a few minor weaknesses are there which needs to be removed.

Criterion-5: Faculty and Support Staff

Departmental faculty members are well qualified covering all the major areas of the curriculum. Most of them have expertise in various areas of specializations within == Engineering being offered at the department; however, PhD Faculty in the area of ==== should also be inducted to provide adequate coverage to this important area of ==== Engineering as well.

A concern was raised in the last visit report about the shortage of lab engineers, which persists to date. The number of lab engineers does not match with the number of labs in the department which is a serious weakness as per EAB guidelines, i.e. each lab being supervised by a lab engineer and having adequate supporting technical staff. Though each lab has its dedicated support staff but even to date each lab does not have a lab engineer supervising the lab. This lingering issue must be addressed at priority and compliance to this must be reported to EAB within 3-months.

Faculty retention is also an area of concern. Since last visit of PEC, more than 10 faculty members have left the <HEI>, although new faculty members have been inducted to replace them. This is primarily attributed to the fact that most of the faculty members are uniform officers who are posted here only for a specific term, i.e. 2-3 years, after which they are posted somewhere else. However, for the consistency and continuation of program policies, a certain percentage of faculty should be ensured on permanent basis in the department.

Due to continuous increase in the induction of students during the last 3-4 years, student :teacher ratio has increased from its value of 23:1 during the last visit in --- to 28:1 at present. It is further going to deteriorate if last-year intake of around 180 students is allowed for future intakes too, as requested in the "Change of Scope" request by <HEI>. As such the number of faculty members relative to the total student population is an area of serious concern with the future expected intakes.

<HEI> has well laid down policies for the training of newly inducted faculty members. In addition, newly inducted faculty members are also guided / trained through on job mentoring by senior colleagues. Seminars on OBE trainings have been conducted and administration has planned more training sessions in the near future.

The team has found the program to be generally in compliance to this criterion, except for the weakness in terms of student:teacher ratio, which would become severe if increased student intake in allowed to continue without first inducting more qualified faculty, to bring this ratio consistent with EAB's requirements.

Criterion-6: Facilities and Infrastructure

Lab facilities are available in sufficient numbers. ---- Lab may be included in future plans. Concern about old equipment needs to be addressed by the administration on priority.

With the gradual increase in student intake, the library space and library resources should also be enhanced proportionately. Sufficient number of computer facility with internet service is available on campus.

Allied facilities such as sports grounds, swimming pool, cafeteria, mess, mosque, medical, etc. are kept in good condition, and are being utilized efficiently.

Student's counseling for job hunting is provided through events like job fairs and open houses. There are ample opportunities for extracurricular activities, which are organized quite regularly. During the visit PEC team had the opportunity to see the students and staff of <HEI> participating in 'Spring Festival', which was organized around the campus.

The team has found the program to be in full compliance to this criterion.

Criterion-7: Institutional Support and Financial Resources

<HEI> being a public sector institute has been supported by Government through --- and ---, in addition to fee from self-sponsored students. Financial commitments from these sources should be clearly segregated and spelled out.

Self-generated (e.g. through testing/consultancy services) financial resources are limited. Need is there to enhance this financial resource as well.

Lab modernization is pending for quite some time, despite concerns raised by the last visit team. Development allocations from <HEI> must be enhanced, specifically to cater for the requirements of acquiring additional lab equipment in the wake of increased student intake over past few years.

Although student intake has been increasing over past 3-4 years, the recurring budget has been reduced, e.g. from Rs.--- M for FY 2012-13 to Rs.---- for FY 2013-14.

Budget for R&D pursuits and presentations/publication is quite minimal, i.e. Rs.---K for FY 2012-12, Rs ---K for FY 2013-14, and only Rs.---K for FY 2014-15 spent to date. R&D allocation must also be enhanced.

These concerns identified by the visitation team should be addressed on priority.

Criterion-8: Continuous Quality Improvement

Department has made visible efforts to address the concerns / weaknesses raised during the last accreditation visit, as a result of which there are noticeable improvements in certain areas identified as weaknesses / concerns in the previous visit report. However, not much has been done to address the weaknesses found in terms of the number of workstations in the labs and the number of Lab Engineers engaged to supervise these labs.

Departmental faculty has been further strengthened by the induction of qualified PhD faculty; but at the same time the continuous increase in student intake over the past few years has led to a quite high value of student-teacher ratio, i.e. more than the maximum set by EAB accreditation Manual-2014 --- suggesting that the increase in departmental faculty has not been proportionate to the increase in student intake.

As far as the faculty qualifications and number of publications by faculty members since last accreditation visit, there has been substantial increase in the number of faculty publications and the number of PhD faculty has also increased; there is also a significant increase in the number of industrial projects / consultancies undertaken by the departmental faculty members.

The department must take immediate actions to remove the pending weakness identified / raised during the last accreditation visit, and also in the refinement of its formal processes and their implementation for ensuring closure of the CQI loop.

The visitation team has found a few weaknesses in compliance to this particular criterion.

Criterion-9: Industry Linkages

The involvement of industry in curriculum development though there but can only be termed as being minimal. This is because there is no formal mechanism in place for receiving inputs from practicing engineers and local industry in the curriculum development. However, the department has in place a formal mechanism for seeking feedback from the employers in Industry for the assessment of attainment level of PEOs. The questionnaire being used to seek feedback is though not very appropriate for comprehensive evaluation of the attainment of PEOs and needs to be revised.

There is a need for a separate office with adequate staff for establishing liaison with the industry in order to create opportunities for the students to acquire industrial experience via internship and design projects / ideas addressing the local industry needs / problems. There are also a number of sponsored / supervised by Professional-Engineers working in the industry who are supervising a decent number of student groups in their Final-Year projects. Some of the departmental faculty members with industrial experience have played an important role in establishing such industry linkages.

The department must take immediate actions to remove the concerns raised in compliance to this criterion through formal involvement of industry in the curriculum review process.

The visitation team did not find any deficiency or weakness in compliance to this particular criterion; however, there are a few concerns raised in this regard.

4. ACKNOWLEDGEMENT

The EAB visitation team would like to thank the entire faculty of <HEI> in general, and the <head of HEI>, the Dean ---- and the focal person ------ in particular, for their hospitality and cooperation for a smooth conduct of evaluation.

5. PROGRAMME EVALUATION FORM

The observations of the EAB visitation team while evaluating the BE ---- Engineering program of <HEI> for compliance to various accreditation criteria are attached as Appendix-1: Program Evaluation Form.

6. RECOMMENDATIONS BY VISITATION TEAM

The institute had applied for accreditation under the new Accreditation Manual-2014, i.e. as a Tier-1 institute practicing Outcome-Based Education system. Based on the OBA system of accreditation, the team evaluated the program of ----- Engineering for its compliance to the Nine accreditation criteria and found a number of weaknesses primarily related to the compliance of Criteria-1: Program Educational Objectives (PEOs), Criteria-2: Program Learning Outcomes (PLOs) and Criteria-8: Continuous Quality Improvement (CQI).

As a result, the team recommends to EAC that the program **may be accredited under Tier-1 for a period of two(2) years, i.e. for intake batches 2011 & 2012**.

In addition, the program resources were also evaluated for the possible increase in take requested by the institute. Based on the prevailing state of program resources, especially the faculty strength, the laboratory equipment and staff, and other allied facilities, **the program should not be allowed to increase its intake beyond 160 students per year and that too if additional faculty is immediately hired to bring the student:teacher ratio below the limit set by EAB.**

Keeping in view that the program has already been gradually increasing its intake over the past 3-4 years without seeking EAB's approval, it is strongly suggested that EAB should ensure that the department MUST take immediate actions to address the concern and limit its annual intake as would be prescribed the EAB.

Pakistan Engineering Council

Evaluator's Aplomb and Decorum at Accreditation Visit

Abstract

Evaluator's code of conduct or its aplomb and decorum is often a subject of discussion or point of contention by receiving institutions. Dissatisfaction as to the behavior of evaluators, who are regularly charged by institutions among others as self-centered, hot-tempered, inconsiderate, disrespectful, ignorant and unprofessional, is not inconceivable. After all evaluators are human and to err is human, as many would like to make a defense. A common sense rule of engagement is neglected and instead is justified by the unreasonable approach and attitude (that is cynical, biased, arrogant, or destructive).

Introduction

A society demands adherence to a set of rules to ensure continuous peace and tranquility. Similarly, evaluators for accreditation need a set of rules that must always be observed to provide assurance or confidence to those being evaluated that due diligent has been exercised with fairness and accuracy. There is always a tendency for those being evaluated to lower their level or status below that of the evaluators, possibly out of "fear" or as a courtesy. Evaluators on the other hand should not take advantage of the situation to demand respect and obedience. The relationship should be as cordial or friendly but with earnestness or seriousness. Accreditation is a peer assessment process and thus being collegial is demanded. The rules that govern evaluators are usually common sense though at times has to be laid down clearly as a reminder. Work and life experiences may allow accumulations of both good and bad behaviors/attitudes but evaluators are expected to be able to exert control on undesirable traits and exude exemplary characters. The voluntary nature of evaluators' involvement should speak for itself of the caring and professional attributes to be exhibited. It is the aim of this document to expound further on the aplomb and decorum of evaluators in order to provide useful information that allows for best conduct during accreditation visits.

Definition

The word "aplomb" can be understood as assurance, self-confidence, composure, cool, style, ease and poise, whereas "decorum" can be understood as good manners, good behavior, modesty, politeness, respectability, correctness, etiquette and protocol. It is expected that evaluators be full of composure and well-mannered in undertaking the accreditation exercise. There should not be at any point of time during the accreditation visit that disgusting behaviors such as outburst, disrespectful and making degrading remarks be exhibited. Professionalism as opposed to unpreparedness should govern all evaluators.

Appearance

Accreditation is an official function and as such evaluators are expected to dress formally. It is preferred that male evaluators include the wearing of a coat and tie whereas female evaluators are to dress decently. The way we dress portrays that the occasion is serious, and that the evaluators are there not for a social reason but to conduct a fair and accurate assessment.

Gracious

Upon arrival, it is a norm that evaluators will be greeted by officials and academic staffs from the institution where accreditation is to be conducted. Evaluators will then be meeting them and other relevant individuals during the course of the accreditation process. A few of them may be close friends, relatives or ex-students. It is imperative that evaluators do not exhibit "over-friendly" gestures, such as hugging or burst into laughter, and making statements, such as "these were my students" or "how's the wife and family?" This is to avoid the onlookers from having the perception of possible biasness. Accreditation is an official function and there is the need to create an atmosphere of seriousness where impartiality must not only be practiced but also be seen.

Impartial

Sometimes friendship may blind judgment in the evaluation process. Evaluators become uneasy to conduct the evaluation exercises or anxious to please for afraid of offending or souring the established closeness. If that would be the situation, evaluators must shy away from volunteering for the job. This is especially so when there are many close friends and collaborators in work. Evaluators must also be able to make independent judgment without fear of retaliation or reprisal.

Composure

Being an official function, it does not mean that one cannot smile nor crack jokes and render the session dull. However, evaluators must tread carefully so as not to overdo things. Prior preparation is necessary to ensure composure or control of the situation. This includes preparing for and understanding the subject matter, and the approach to be taken prior to the visit. One must then be able to read the situation and adjust accordingly.

For the head of the delegation (team leader), when confronted with a high ranking official such as a vice chancellor (usually present at the opening and/or exit meeting), there is the need to rise to the occasion and not feel subdued. Prior communication (via the accreditation establishment or directly) with the institution on the issue of protocol and associated practice should have been resolved before the meeting. Being composed means able to communicate effectively at all situations, regardless of who the audience is.

Industrious

Prior preparation in the form of identifying gaps from the submitted self-assessment report is important. It is a best practice to write them down so that there is a flow of thoughts during questioning. It is hard work for the evaluators but it is also being fair to the institution/program for their equal or if not greater effort in coming out with the self-assessment report. Evaluators should not be quitters despite the heavy expectation. With the limited time available for the accreditation visit, the prior preparation is highly essential and it also calls for being meticulous. Every single minute available at the accreditation visit must be filled with efforts to investigate or determine compliance

and performing advisory role. There should not be the wasting of time or the allowing of time to be wasted.

Patient

Students and technicians may not be forthcoming and this may irritate evaluators. Patience is a virtue. Indeed evaluators need to be patient in their work. Sometimes evaluators become impatient at the request of information, throwing sarcastic remarks on the late or suspicious document retrieved. Being patient with fellow colleague is also sought for. Evaluators may not be contented working with a new or a senior evaluator due to experience or perception. Tolerance is needed to ensure the evaluation team can function effectively.

Polite

Questions to students such as, "who is your poorest lecturer?" or "what is your worst course?" may be construed as trying to bring down a particular lecturer in front of the students. There is a need to always think of what information is being sought. If the evaluator wants to find out how the learning process takes place, he could ask for the student's favorite course, and why he or she likes it so much. This would make them relate their interesting experience. There is no need to make the students feel uneasy or speak poorly of certain lecturers. Evaluators must focus on identifying the extent of the learning process (delivery mode) and not leading to character assassination.

Inquisitive

Asking the staff to explain through using words like "how", "what" and "why" would encourage them to open up, rather than direct questions, such as, "Have you done this?" or "Is this your work scope?", where the answer would normally be a single word of "yes" or "no". Too many of "yes" and "no" answers create not only a dull environment for both parties but also not moving forward in getting the information. Be prepared to ask the right question to the right person. Evaluators must be clear and concise in formulating the questions. Similarly, evaluators must also speak with a clear voice but not in an interrogative or aggressive manner. Facial expression of lost or uncertainty on the part of those being questioned should lead evaluators to rephrase the question for clarity. Sometime by referring to records generated from an activity or policy document, evaluators could provide greater clarity to the questions.

Equality

Try placing the staff or student at the same level during the meeting, not that of a "boss" and a "worker". Try making them feel the importance of their contribution or participation to the program or institution. This would surely make them convey the true situations or conditions of the program/institution. Give assurance that anonymity will be maintained but tell them that the issues brought forward would be highlighted to the management. However, evaluators must be able to distinguish between responses from disgruntled and destructive staff to that with constructive views.

Punctuality

Time management is the essence in conducting an evaluation process. Keep to the agreed time as it forms part of evaluator's professionalism. Otherwise staff, students and invited guests would have to wait beyond their arranged time and also reducing the much needed time for evaluating other equally important criteria. If ever the appointed time is exceeded, apologies must be extended. However,

repeated disregard of time management although accompanied with apologies reflects evaluator's lackadaisical attitude.

Objective

In any situation obtaining the evidence is important, and especially when there are issues of concern or there exist weaknesses. There is a need to resolve the issues amicably through a triangulation process. Institutions must be made known of the gaps or shortcomings clearly. Too general (or ambiguous) a statement and not supported (not detailed out in the report) would not help the institution to identify the root cause. No assumption should be used as evidence. For example, an institution is not asked by the evaluator to furnish particular evidence due to shortage of time, but it is a requirement that the item be addressed in the evaluation report, and the evaluator unilaterally assumes that there is no evidence. Some may even go further to fabricate evidence of non-compliance for the sake of trying to justify the decision.

Analytical

Evaluators may at times be approaching accreditation in a simplistic mode. Not much effort is placed to be analytical and evaluative. A single non-compliance is not pursued further to examine its extent or if there are any supportive evidence to negate the non-compliance. Accreditation is not a fault finding exercise as some evaluators may have approached. No institution/program would be without shortcomings. However, evaluators must determine how serious are the shortcomings and whether they could be clustered together and deemed as major or isolated and minor. Only with analytical approach from the triangulation process that one can be fair in arriving at the conclusion.

Honesty

Evaluators may try to massage the information obtained in order to fit in with the earlier drawn conclusion. This may or may not benefit the institution/program. As an example, it may be that the standard of final examination is clearly low i.e., below the expectation for an engineering program, and yet the evaluator would prefer to hide the fact or write it in a way that may camouflage the evidence. This act of trying to help the program to beat the rules despite in good faith should be shunted. Similarly, retaliation or vengeance on the institution/program due to unfavorable past experience should not happen. If a person from the institution happens to have differences with the respective evaluator, the onus is upon the evaluator not to be involved with the person but instead get a colleague to pursue on the matter. It is also an issue of conflict of interest.

Demeaning and cynical

The act of demeaning officials, academic staffs or students must be strictly avoided. Statements that may offend the institution such as, "the program is only attracting below par students" or "the program has no prospective future" should not be used. Instead, evaluators could say "the program designed does not fit with the capability of the students enrolled" or "the institution may need to consider conducting a market study".

Cynical or sarcastic statements to academic staffs, such as "I think you know better than the students or technicians", whereas the academic staffs were dumbfounded (and they knew that the evaluator was being cynical) when asked on the same issue as the students or technicians. Other examples of sarcasms, "you have written an extremely good report such that we cannot make any sense of it", "can you spell the word Bloom (the taxonomy)?" or "is Bloom spelt as Bluem?", neither create a collegial

environment nor facilitate the accreditation process.

Avoid rebutting student's reply in a cynical manner; a student may have made a comparison between the workload at his university with other universities where his colleagues are studying, and the evaluator feels that it is not appropriate or incorrect and rebut it by saying that the student is spiteful or a slow learner. The evaluator may then brag on his own university life experience to counter the student further. This argumentative and opinionated behavior is unbecoming of an evaluator.

Statements to students which kill their enthusiasm like "I think I can counter on that ..." or "I think it is dangerous to make that statement...", should be avoided. Instead evaluators should approach with, "what do you think of it?", "how would you consider it?", "have you ever thought of it?", "don't you think it would be appropriate?" These sentences prompt them to open up or make them think before they answer.

Irritant

The cordial relationship between the institution and evaluators should also be extended to between evaluators. Disrespectful or disregardful attitude among evaluators during the accreditation visit creates distrust and breakdown in the teamwork. Often evaluators are unaware that they irked their fellow colleagues due to unmindful (be it unintentionally) behavior by not allowing them to participate (asking questions) in the meeting. For example, even before the staff or student being posed the question is about to answer, the irritant evaluator undertakes by himself to rephrase the question fielded by his colleague as if the question needs clarity. Such repetitive behavior or persistent cutting off another panel evaluator from asking question generate ill feeling among evaluators, and consequently may explode into a war of words in front of those being interviewed. The "I know all and you keep quiet" attitude is unbecoming of evaluators and against the spirit of "helping" one another to excel in their work. Similarly, being respectful and letting the staff or student complete their answers should be practiced. Ending a conversation requires tactfulness or else would be very irritating on the part of those trying to answer.

Unprepared

Unprepared evaluators tend to depend on information provided by the institution on the day of visit and would not be able to focus on the real issue. Evaluators thus could not have a complete picture of the status of the program and may be barking at the wrong tree. Sometimes evaluators question on the information that has been furnished in the self-assessment report, which indicate that they may not have read the report. It is the task of evaluators to be able to triangulate evidences submitted in the self-assessment report and those made available at the visit to resolve any issues identified (whether earlier or during the visit).

Nitpickers

Nitpickers are those evaluators that raise insignificant issues and highlight them and yet these do not influence the overall quality of the program. Examples of insignificant issues raised are: the covers of final-year project reports are not consistent or are not adhering to the guidelines; the font sizes used in the design project reports are not in accordance to the specified guidelines; safety notices on display have some misspells; and students are not able to memorize the program outcomes. The act of following through on an issue is not nitpicking. For example, when an evaluator noticed that the final examination questions are not challenging or not examining the depth, he may pursue further with the

academic staff responsible for the course to seek other assessments, to ascertain the depth assessed. He would also look at the moderation process and follow through with the teaching plan. It is an act of triangulation before he can ascertain the extent of the shortcoming. He would also seek clarification from other academics on their courses as well. That is an act of being thorough and fair before concluding on the seriousness of an issue.

Receiving gifts/asking for favor

Institutions usually feel obliged to present some mementoes to evaluators at the end of the visit. The reason given is that we are Asian and it is customary to give as a sign of respect or of being appreciative. Accreditation exercise is an official function that eventually would determine whether a program would receive or declined accreditation. As such the element of decision present in the accreditation exercise should not cloud the institution to think as if it is a social visit. The onus is on the institution to understand the situation and not to provide any form of gifts to evaluators. It is suffice to facilitate evaluators in the process of accreditation. Evaluators should politely decline the gifts. Evaluators should not request for assistance for personal reasons. For example, the act of asking the host institution to provide transport for sightseeing before or after the accreditation visit is considered as having received favors.

Body language

The body language is equally important, as any signs of disrespect shown by the evaluators could create an atmosphere of tension that does not help both parties. Similarly, aggressive tone by evaluators can intimidate the staff or create ill feeling. There is a need to break the ice, and thus evaluators must be able to bring those involved in the accreditation process at ease through skillful questioning with the right tone. Introducing who you are at the beginning of a session with a pleasant smiling face rather than a stern facial expression would help to calm the situation. Making hand gestures or deep sighing as a result of dissatisfaction should not be exhibited especially within the company of the staff and students. The act of throwing files or documents on the table as a result of disappointment should not occur.

Conflict of interest

Conflict of interest may come in many ways. Some conflicts may be inevitable and at times only known during the visit. Evaluators must be able to assess the situation as to whether there is a conflict that may result in a favorable or unfavorable decision. An evaluator may refrain himself from participating in the meeting session in the presence of the person that may induce the conflict. An evaluator may also disqualify himself from the evaluation team depending on the seriousness. Clear conflict such as having spouse/child/close relative studying at the institution of concern, involvement as an external examiner/adviser/part-time lecturer at the institution or having disputes/dissatisfaction/poor perception with the institution should be avoided.

Unreasonable demand

Demands made to accreditation establishment for the provision of facilities such as accommodation/ meeting place (though seem reasonable) or else "threaten" that the accreditation report could not be completed within time, tantamount to placing the establishment under ransom. The spirit of volunteerism and professionalism in evaluators is thus questionable. Reasonable requests are acceptable but not placing the establishment on a tight spot, as the establishment has no other option

but to wait for the report. Similarly, participation at training courses or workshops that are supposed to improve competency of evaluators should be taken seriously. Commitment to accreditation visits and any programs is expected once evaluators have committed. Absence without valid excuse or taking the course/workshop lightly is an act of irresponsibility.

Conclusion

Evaluators are not susceptible to commit mistakes; however, equipped with the right knowledge on best behavior or conduct, evaluators can soar to exhibit excellent qualities when delivering their evaluation. Knowledge must be accompanied with practice, and practice makes perfect. With evaluation experience increases, an evaluator should be improving and be a leader by example. The voluntary work should not result in evaluators placing less emphasis or not full hearted in conducting evaluation. Being professional is neither to be obsessively compulsive nor having lackadaisical attitude, but giving the most and the best and operating within the boundary.

Pakistan Engineering Council

University/HEI Feedback regarding Visitation Team

The following four criteria should be considered for evaluation of the evaluators on a scale of

1 to 5, how would you evaluate the evaluation process by the visitation team?

1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree, 5= Strongly Agree

	1	2	3	4	5
1. Only necessary documents were requested.	☐	☐	☐	☐	☐
2. The documents and data were given due time for evaluation.	☐	☐	☐	☐	☐
3. The evaluation team was well versed and professional.	☐	☐	☐	☐	☐
4. The queries raised by the team were specific to job being evaluated.	☐	☐	☐	☐	☐
5. The evaluation team managed its time judiciously.	☐	☐	☐	☐	☐
6. The evaluation team trusted what was presented to them.	☐	☐	☐	☐	☐
7. The team was responsive.	☐	☐	☐	☐	☐
8. The team provided adequate time for answering queries.	☐	☐	☐	☐	☐
9. The people being evaluated were given due respect by the evaluation team.	☐	☐	☐	☐	☐
10. Integrity of individual was respected.	☐	☐	☐	☐	☐
11. The organizational system and people were not criticized.	☐	☐	☐	☐	☐
12. The evaluation was in a friendly and professional manner.	☐	☐	☐	☐	☐

PEC Visit
Peer Evaluation Form of Evaluator

Write the name of each of your group members in a separate column. For each person, indicate the extent to which you agree with the statement on the left, using a scale of 1-4 (1=strongly disagree; 2=disagree; 3=agree; 4=strongly agree).

Evaluation Criteria	Group Member:				Group Member:				Group Member:			
	1	2	3	4	1	2	3	4	1	2	3	4
1. Well-versed with PEC accreditation manual.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
2. Maintained aplomb and decorum of the visit.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
3. Completed in depth preparation of SAR.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
4. Attended evaluation team's meetings regularly.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
5. Contributed meaningfully to group discussions.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
6. Completed assigned tasks in time.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
7. Prepared his part of work in a befitting manner.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
8. Demonstrated a cooperative and supportive attitude.	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

9. Contributed significantly to the success of the evaluation.	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐
10. Met with the host institution's management in a courteous manner.	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐
11. Focused only on relevant questions and documents.	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐
12. Submitted his part of report in time.	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☐ ☐ ☐
13. Demanded additional favors from host institution.	Yes ☐ No ☐	Yes ☐ No ☐	Yes ☐ No ☐