INTRODUCTION

In recent years it has become an obligation that institutions of higher education demonstrate the effectiveness of their academic programs in providing high quality education that positively impacts student. Furthermore, most accrediting bodies and others concerned with quality assurance are requesting that institutions assess students' learning outcomes as a means of improving academic programs. This has led HEC to develop methods for assessing the quality of academic program.

Assessment is a systematic process of gathering, reviewing and using important quantitative and qualitative data and information from multiple and diverse sources about educational programs, for the purpose of improving student learning and evaluating whether academic and learning standards are being met. The process culminates when assessment results are used to improve student learning. The elements of a successful assessment program include (Bar 1998):

1.   Purpose identification
2.   Outcomes identification
3.   Measurements and evaluation design
4.   Data collection
5.   Analysis and evaluation
6.   Decision-making regarding actions to be taken

Although only a small number of institutions in the United States were engaged in assessment of educational programs fifteen years ago, now nearly every institution carries out assessment-related projects. In 1995, according to Campus Trends data, 94 percent of institutions in the United States had assessment activities under way and 90 percent had increased their activities compared to five years ago. Rather than depending on nationally available assessment instruments, most institutions (86 percent) reported using local measures and nearly 70 percent were developing their own portfolios (El-khwas, 1995, Palomba and Banta 1999).

The new trends in accreditations criteria have brought outcome assessment to a sharp focus. At the core of ABET Engineering criteria 2000, is an outcome assessment component that requires each engineering program seeking accreditation or re-accreditation to establish its own self-assessment process which in turn will be assessed by ABET (ABET 2000, Huband 2001). Other accreditation bodies such as the Association to Advance Collegiate Schools of Business (ACCSB) and the Computer Science Accreditation Board (CSAB) require programs or colleges seeking accreditation to have self-assessment.

The purpose of this document is to outline the process of conducting self-assessment (SA) of academic programs. HEC requires universities to conduct periodic self-assessment for its academic programs in order to improve them and ensure high academic standards. Self-assessment is an important tool for academic quality assurance and provides feedback for faculty and administration to initiate action plans for improvement.

This documents is organized as follows: Section 2 states the objectives of self-assessment, followed by the procedure for self assessment in Section 3 while Section 4 presents the criteria for self assessment.

2. OBJECTIVES

The objectives of self-assessment are to:

2.1 Maintain and enhance academic standards

2.2 Enhance students' learning

2.3 Verify that the existing programs meet their objectives and institutional goals

2.4 Provide feedback for quality assurance of academic programs

2.5 Prepare the academic program for review by HEC

3. SELF-ASSESSMENT PROCEDURE

Each academic program shall undergo a self-assessment every year / as specified by HEC. The Quality Assurance (QA) Directorate at NUST in coordination with Local Quality Enhancement Cell (LQEC) at each institution is responsible for planning, coordinating and following up on the self-assessment (SA) activities. The steps of the procedure for SA are as follows:

3.1   QA Dte intimates the institutions about programs for which SAR is to be written. The LQEC initiates the SA one semester prior to the end of the assessment cycle through the Principal / Commandant / Dean Office in which the program is offered. However, if the program is undergoing the SA for the first time, the department will be given one academic year for preparation.

3.2   Upon receiving the initiation letter the department shall form a program team (PT). The PT will be responsible for preparing a self-assessment report (SAR) about the program under consideration over a period of one semester. The team will be the contact group during the assessment period.

3.3   The department shall submit the SAR to the LQEC through the concerned Dean. The LQEC reviews the SAR within one month to ensure that it is prepared according to the required format.

3.4   The Principal / Commandant / Dean forms a program assessment team (AT) in Consultation with the LQEC recommendations within one month. The AT comprises of 2-3 faculty members from within or outside the university. The AT must have at least one expert in the area of the assessed program.

3.5   The LQEC plans and schedules the AT visit period in coordination with department that is offering the program.

3.6   The AT conducts the assessment, submits a report and presents its findings in an exit meeting that shall be attended by the LQEC, Dean, PT and faculty members.

3.7   The LQEC shall submit an executive summary on the AT findings to the Principal / Commandant / Dean.

3.8   The Department shall prepare and submit an implementation plan to LQEC base on the AT findings. The plan must include AT findings, and the corrective actions to be taken, assignment of responsibility and a time frame for such actions. Table A.2 in Appendix A provides a format for preparing a summary of the implementation plan.

3.9   LQECs shall submit complete SARs to QA Dte as per given schedule.

3.10   The LQEC shall follow up on the implementation plan to ensure departments are adhering to the implementation plan. The academic department shall inform the LQEC each time a corrective action is implemented. LQEC shall review the plan once a semester to assess

the progress of implementation. Table A.2 will provide the LQEC with guidelines for monitoring the implementation.

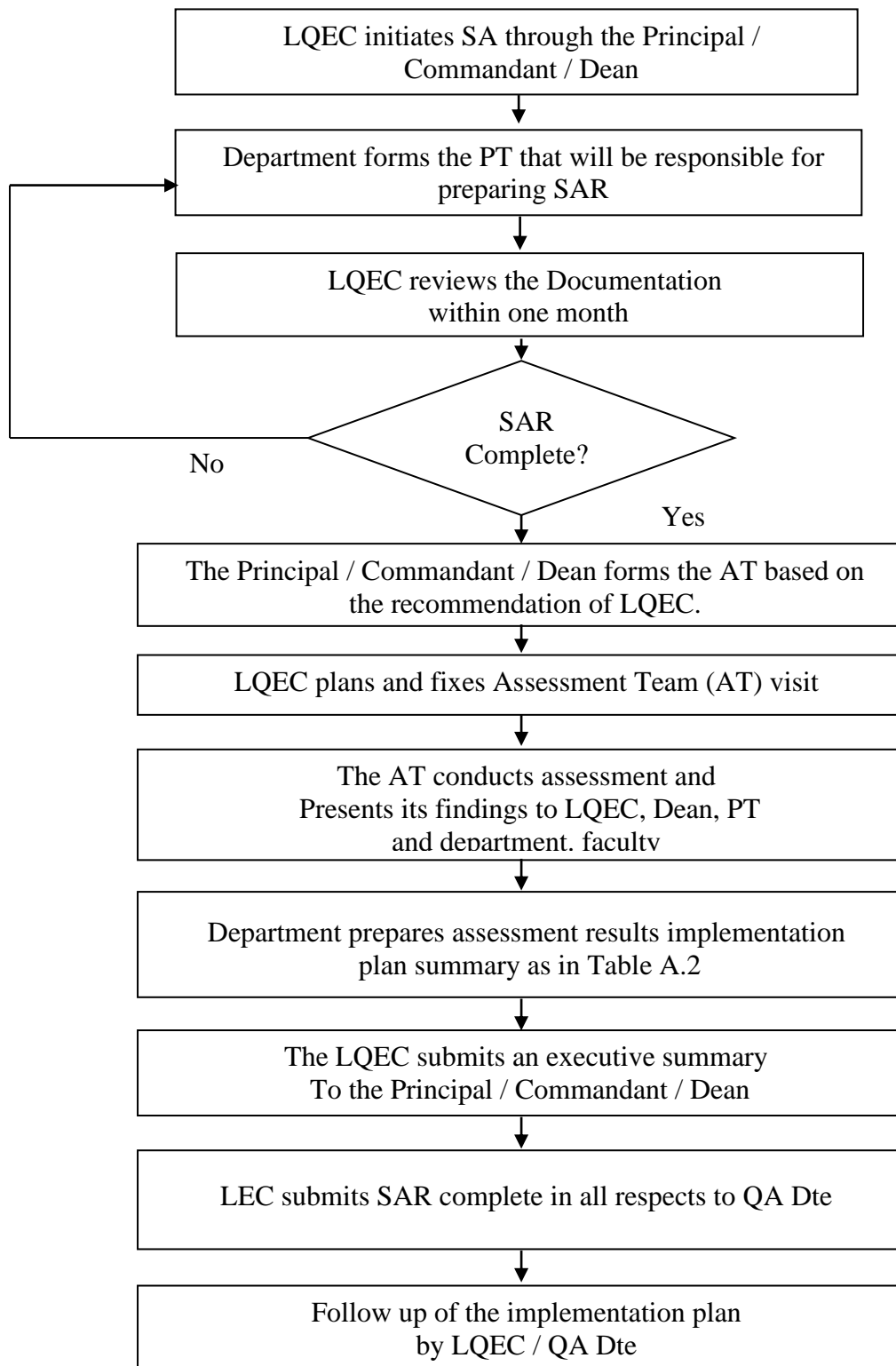3.11 LQECs shall forward progress on implementation plan to QA Dte.

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┌────────────────────────────────────────────┐
│   LQEC initiates SA through the Principal / │
│            Commandant / Dean               │
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│  Department forms the PT that will be      │
│  responsible for preparing SAR             │
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│      LQEC reviews the Documentation        │
│            within one month                │
└────────────────────────────────────────────┘
                    │
                    ▼
              ◇ SAR Complete? ◇   No → (back to Department forms the PT)
                    │ Yes
                    ▼
┌────────────────────────────────────────────┐
│  The Principal / Commandant / Dean forms   │
│  the AT based on the recommendation of LQEC.│
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│  LQEC plans and fixes Assessment Team (AT) │
│  visit                                     │
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│       The AT conducts assessment and       │
│  Presents its findings to LQEC, Dean, PT   │
│       and department. faculty              │
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│ Department prepares assessment results     │
│ implementation plan summary as in Table A.2│
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│    The LQEC submits an executive summary   │
│    To the Principal / Commandant / Dean    │
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│ LEC submits SAR complete in all respects   │
│ to QA Dte                                  │
└────────────────────────────────────────────┘
                    │
                    ▼
┌────────────────────────────────────────────┐
│    Follow up of the implementation plan    │
│          by LQEC / QA Dte                  │
└────────────────────────────────────────────┘
```

FIG-1: Self-Assessment Procedure

Legend:
- QEC: Quality Enhancement Cell
- PT: Program Team
- SA: Self Assessment
- SAR: Self Assessment Report

4. CRITERIA

The self-assessment is based on several criteria. To meet each criterion a number of standards must be satisfied. This section describes each criterion and its associated standards.

CRITERION 1: PROGRAM MISSION, OBJECTIVES AND OUTCOMES

Each program must have a mission, measurable objectives and expected outcomes for graduates. Outcomes include competency and tasks graduates are expected to perform after completing the program. A strategic plan must be in place to achieve the program objectives. The extent to which these objectives are achieved through continuous assessment and improvements must be demonstrated.

Standard 1-1: The program must have documented measurable objectives that support college and institution mission statements.

- Document institution, department and program mission statements

> (Example: Mission statement of University / Institute)
> 'To develop human resources by inculcating professional knowledge, skills and ethical values, to bring-in prosperity and technological advancement based on high-tech research in the individual's life and society at large'

- State program objectives. Program educational objectives are intended to be statements that describe the expected accomplishments of graduates during the first several years following graduation from the program.

> (Example: Mission statement of Program)
>
> <u>BS in Engineering Programs</u>
>
> 'To build concrete concepts of the subject through high quality class teaching laboratory work and small-scale research work, to help individuals become change agents on the canvas of technology advancement and innovation.'
>
> <u>Program Objectives:</u>
>
> 1. To enable the graduate to apply knowledge gained in the degree program effectively and efficiently.
> 2. To successfully bring innovation in related technology with cost-effectiveness.
> 3. To step into Research and Development (R&D) effectively.
> 4. To pursue higher studies in any international University of high repute.
> 5. To breakaway from maintenance-based job and step into designing and manufacturing.

- Describe how each objective is aligned with program, college and institutions mission statements.

> (Example: Main elements of the strategic plan to achieve program mission and objectives)
>
> 1.   Curriculum design: Core subjects, Elective subjects. A wide variety of elective subjects are offered which brings diversity in the program. It also includes provision of areas of specialization.
>
> 2.   Concept building through extensive laboratory work, applying theoretical knowledge.
>
> 3.   Small-scale practical projects compatible with contemporary technological advancements throughout the degree program, and one practical Project in the final semester; which may become basis for winning a good job.
>
> 4.   Compulsory summer internships to give hands-on experience to students. Internships are arranged by the University.
>
> 5.   Co-curricular activities like academic clubs, participating in national and international competitions and exhibitions.

- Outline the main elements of the strategic plan to achieve the program mission and objectives.

- Provide for each objective how it was measured, when it was measured and improvements identified and made. Table 4.1 Provides a format for program objectives assessment.

Objective	How measured	When measured	Improvement Identified	Improvement made
1.	Appendix (C)			
2.	- do-			
3.	- do-			
4.	- do-			
5.	- do-			

Table 4.1: Program objectives assessment

Standard 1-2:   The program must have documented outcomes for graduating students. It must be demonstrated that the outcomes support the program objectives and that graduating students are capable of performing these outcomes.

- Describe how the program outcomes support the program objectives. In Table 4.2 show the outcomes that are aligned with each objective. A sample of such a table is shown in Appendix D

Program Outcomes	Objectives			
1	1	2	3	4
2				
3				

Table 4.2: Outcomes versus objectives

- Describe the means for assessing the extent to which graduates are performing the stated program outcomes / learning objectives. This should be accomplished by the following:

    1. Conducting a survey of graduating seniors every semester. *(Proforma-3)*
    2. Conducting a survey of alumni every two years. *(Proforma-7)*
    3. Conducting a survey of employers every two years. *(Proforma-8)*
    4. Carefully designed questions asked during senior projects presentations. These questions should be related to program outcomes
    5. Outcomes examinations.

A sample of the forms for such surveys is given in Appendix C. The data obtained from the above sources should be analyzed and presented in the assessment report.

It is recommended that the above surveys should be conducted, summarized and added to the self-study assessment report. Departments should utilize the results of the surveys for improving the program as soon as they are available.

Standard 1-3: The results of program's assessment and the extent to which they are used to improve the program must be documented.

- Describe the actions taken based on the results of periodic assessments.
- Describe major future program improvement plans based on recent assessments.
- List strengths and weaknesses of the program.
- List significant future development plans for the program.

Standard 1-4: The department must assess its overall performance periodically using quantifiable measures.

- Present students enrolment (undergraduate and graduate) during the last three years indicating percentages of honor students, student faculty ratio, average graduating grade point average per semester, average time for completing the undergraduate program and attrition (drop-out) rate.

- Indicate percentage of employers that are strongly satisfied with the performance of the department's graduates (Use employer's survey).

- Indicate the median/average student evaluation for all courses and the % of faculty awarded excellence in research award.

- Present performance measures for research activities. These include journal publications, funded projects, and conference publications per faculty per year and indicate the % of faculty awarded excellence in research award.

- Present performance measures for community services. This may include number of short courses per year, workshops and seminars organized.

- Indicate faculty and students satisfaction regarding the administrative services offered by the department. Use faculty and students surveys. *(Proformae 1 and 5).*

CRITERION 2: CURRICULUM DESIGN AND ORGANIZATION

The curriculum must be designed and organized to achieve the program's objectives and outcomes. Also course objectives must be in line with program outcomes. The breakdown of the curriculum must satisfy the standards specified in this section. Curriculum standards are specified in terms of credit hours of study. A semester credit hour equals one class hour or two to three laboratory hours per week. The semester is approximately fifteen weeks.

Provide the following information about the program's curriculum:

A.   Title of degree program.

B.   Definition of credit hour.

C.   Degree plan: Attach a flow-chart showing the prerequisites, core, and elective courses.

D. Complete Table 4.3 showing curriculum breakdown in terms of mathematics and basic sciences, major requirements, social sciences and other requirements.

E. For each course in the program that can be counted for credit provide maximum of one page specifying the following:
- Course title
- Course objectives and outcomes
- Catalog description
- Text book (s) and references
- Syllabus breakdown in lectures
- Computer usage
- Laboratory
- Content breakdown in credit hours (if applicable) as basic science, math, engineering science, and design for engineering discipline, general education requirements, business requirements and major requirements for the Business Studies and others.

Semester	Course Number	Category (Credit Hours)				
		Math and Basic Science		Core Courses	Humanities and Social Sciences	Technical Electives
		Math	Basic Science			
Total						
Minimum Requirements						

Table 4.3: Curriculum course requirements

Standard 2-1: The curriculum must be consistent and supports the program's documented objective

- Describe how the program content (courses) meets the program objectives

- Complete the matrix shown in Table 4.4 linking courses to program outcomes. List the courses and tick against relevant outcomes. A sample of such a matrix is shown in Appendix D.

Courses or group of courses	Objectives				
1	1	2	3	4	5
2					
3					

Table 4.4: Courses versus program outcomes

Standard 2-2: Theoretical background, problems analysis and solution design must be stressed within the program's core material.

- Indicate which courses contain a significant portion (more than 30%) of the elements in standard 2-2.

Elements	Courses
Theoretical Background	
Problem Analysis	
Solution Design	

Table 4.5: Standard 2-2 requirement

Standard 2-3: **The curriculum must satisfy the core requirements for the program, as specified by the respective accreditation body. Examples of such requirements are given in Table A.1,** (Appendix A).

Standard 2-4: **The curriculum must satisfy the major requirements for the program as specified by the respective accreditation body e.g. PEC, PMDC. Examples of such requirements are given in Table A.1, Appendix A.**

Standard 2-5: **The curriculum must satisfy general education, arts, and professional and other discipline requirements for the program, as specified by the respective accreditation body e.g. PEC, PMDC. Examples of such requirements are given in Table A.1, Appendix A.**

- Address standards 2-3, 2-4 and 2-5 by using information provided in Table 4.4.

Standard 2-6: **Information technology component of the curriculum must be**

- Indicate the courses within the program that will satisfy the standard.

- Describe how they are applied and integrated through out the program.

Standard 2-7: **Oral and written communication skills of the student must be developed and applied in the program.**

- Indicate the courses within the program that will satisfy the standard.

- Describe how they are applied.

- In order to determine the students' satisfaction level about the conduct of course, students should be asked to fill "Student Course Evaluation Questionnaire" (Proforma 1). On the basis of the questionnaire filled by students, the teacher, who taught the course should fill the "Faculty Course Review Report" (Proforma 2). Moreover, Masters / PhD students should fill "Research Student Progress Review Form" (Proforma-4).

- "Teacher Evaluation Form' should be filled by the students to find out the facts about the conduct of a course (Proforma-10).

CRITERION 3: LABORATORIES AND COMPUTING FACILITIES

- Laboratories and computing facilities must be adequately available and accessible to faculty members and students to support teaching and research activities. To meet this criterion the standards in this section must be satisfied. In addition departments may benchmark with similar departments in reputable institutions to identify their shortcomings, if any.

- Provide the following information about the laboratories and computing facilities:

- Describe the laboratory/ computer facilities that are available for use in the program under assessment. Indicate for each lab the following

  - Laboratory Title
  - Location and area
  - Objectives
  - Adequacy for Instruction
  - Courses taught
  - Software available if applicable
  - Safety regulations

Standard 3-1: **Laboratory manuals/documentation/instructions for experiments must be available and readily accessible to faculty and students.**

- Explain how students and faculty have adequate and timely access to the manuals/documentation and instructions.

- Benchmark with similar departments in reputable institutions to identify short comings in laboratory.

Standard 3-2: **There must be adequate support personnel for instruction and maintaining the laboratories.**

- Indicate for each laboratory, support personnel, level of support, nature and extent of instructional support

Standard 3-3: **The University computing infrastructure and facilities must be adequate to support program's objectives.**

- Describe how the computing facilities support the computing component of your program.

- Benchmark with similar departments in reputable institutions to identify short comings in computing infrastructure and facilities if any.

CRITERION 4: STUDENT SUPPORT AND ADVISING

- Student must have adequate support to complete the program in a timely manner and must have ample opportunity to interact with their instructors and receive timely advice about program requirements and career alternatives. To meet this criterion the standards in this section must be satisfied.

Standard 4-1: **Courses must be offered with sufficient frequency and number for students to complete the program in a timely manner.**

- Provide the department's strategy for course offerings.
- Explain how often required courses are offered.
- Explain how often elective courses are offered.
- Explain how required courses outside the department are managed to be offered in sufficient number and frequency.

Standard 4-2: **Courses in the major must be structured to ensure effective interaction between students, faculty and teaching assistants.**

- Describe how you achieve affective student / faculty interaction in courses taught by more than one person such as two faculty members, a faculty member and a teaching assistant or a lecturer.

Standard 4-3: **Guidance on how to complete the program must be available to all students and access to qualified advising must be available to make course decisions and career choices.**

- Describe how students are informed about program requirements.

- Describe the advising system and indicate how its effectiveness is measured.

- Describe the student counseling system and how students get professional counseling when needed.

- Indicate if students have access to professional counseling; when necessary.

- Describe opportunities available for students to interact with practitioners, and to have membership in technical and professional societies.

CRITERION 5: PROCESS CONTROL

The processes by which major functions are delivered must be in place, controlled, periodically reviewed, evaluated and continuously improved. To meet this criterion a set of standards must be satisfied.

Standard 5-1: **The process by which students are admitted to the program must be based on quantitative and qualitative criteria and clearly documented. This process must be periodically evaluated to ensure that it is meeting its objectives.**

- Describe the program admission criteria at the institutional level, faculty or department if applicable.

- Describe policy regarding program/credit transfer.

- Indicate how frequently the admission criteria are evaluated and if the evaluation results are used to improve the process.

Standard 5-2: **The process by which students are registered in the program and monitoring of students progress to ensure timely completion of the program must be documented This process must be periodically evaluated to ensure that it is meeting its objectives.**

- Describe how students are registered in the program.
- Describe how student's academic progress is monitored and how their program of study is verified to adhere to the degree requirements.
- Indicate how frequently the process of registration and monitoring are evaluated and if the evaluation results are used to improve the process.

Standard 5-3: The process of recruiting and retaining highly qualified faculty members must be in place and clearly documented. Also processes and procedures for faculty evaluation, promotion must be consistent with institution mission statement. These processes must be periodically evaluated to ensure that it is meeting with its objectives.

- Describe the process used to ensure that highly qualified faculty is recruited to the program.
- Indicate methods used to retain excellent faculty members.
- Indicate how evaluation and promotion processes are in line with institution mission statement.
- Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process.

Standard 5-4: The process and procedures used to ensure that teaching and delivery of course material to the students emphasizes active learning and that course learning outcomes are met. The process must be periodically evaluated to ensure that it is meeting its objectives.

- Describe the process and procedures used to ensure that teaching and delivery of course material is effective and focused on students learning.

- Indicate how frequently this process is evaluated and if the evaluation results are used to improve the process.

Standard 5-5: The process that ensures that graduates have completed the requirements of the program must be based on standards, effective and clearly documented procedures. This process must be periodically evaluated to ensure that it is meeting its objectives.

- Describe the procedures used to ensure that graduates meet the program requirements.

- Describe when this procedure is evaluated and whether the results of this evaluation are used to improve the process.

CRITERION 6: FACULTY

Faculty members must be current and active in their discipline and have the necessary technical depth and breadth to support the program. There must be enough faculty members to provide continuity and stability, to cover the curriculum adequately and effectively, and to allow for scholarly activities. To meet this criterion the standards in this section must be satisfied.

Standard 6-1: There must be enough full time faculty who are committed to the program to provide adequate coverage of the program areas/courses with continuity and stability. The interests and qualifications of all faculty members must be sufficient to teach all courses, plan, modify and update courses and curricula. All faculty members must have a level of competence that would normally be obtained through graduate work in the discipline. The majority of the faculty must hold a Ph.D. in the discipline.

- Complete the following table indicating program areas and number of faculty in each area.

- Each faculty member should complete a resume, prepared in a format included in Appendix B. *(Proforma-9)*

- Information recorded in Table 4.6 and faculty member's resumes will be sufficient to validate standard 6-1.

Table 4.6 : Faculty distribution by Program areas

Program's area of specialization	Courses in the area and average number of sections per year	Number of faculty members in each area	Number of faculty with Ph.D. degree
Area 1			
Area 2			
Area 3			
Area 4			
Total			

Standard 6-2: All faculty members must remain current in the discipline and sufficient time must be provided for scholarly activities and professional development. Also, effective programs for faculty development must be in place.

- Describe the criteria for faculty to be deemed current in the discipline i.e., based on criteria and information in the faculty member's resumes, what percentage of them is current. The criteria should be developed by the department.

- Describe the means for ensuring that full time faculty members have sufficient time for scholarly and professional development.

- Describe existing faculty development programs at the departmental and university level. Demonstrate their effectiveness in achieving faculty development.

- Indicate how frequently faculty programs are evaluated and if the evaluation results are used for improvement.

Standard 6-3: All faculty members should be motivated and have job satisfaction to excel in their profession.

- Describe programs and processes in place for faculty motivation.

- Obtain faculty input using faculty survey (Appendix C) on programs for faculty motivation and job satisfaction (Proforma 5).

- Indicate how effective these programs are.

Standard 6-4: Faculty engaged in departments offering Masters / PhD programs should concentrate in research activities. Each such department should include Survey Form (Proforma-6) in SAR.

CRITERION 7: INSTITUTIONAL FACILITIES

- Institutional facilities including library, classrooms and offices must be adequate to support the objective of the program. To satisfy this criterion a number of standards must be met.

Standard 7-1: The institution must have the infrastructure to support new trends in learning such as e-learning.

- Describe infrastructure and facilities that support new trends in learning.
- Indicate how adequate the facilities are.

Standard 7-2: The library must possess an up-to-date technical collection relevant to the program and must be adequately staffed with professional personnel.

- Describe the adequacy of the library's technical collection.

- Describe the support rendered by the library.

Standard 7-3: Class-rooms must be adequately equipped and offices must be adequate to enable faculty to carry out their responsibilities.

- Describe the adequacy of the classrooms.
- Describe the adequacy of faculty offices

CRITERION 8: INSTITUTIONAL SUPPORT

- The institution's support and the financial resources for the program must be sufficient to provide an environment in which the program can achieve its objectives and retain its strength.

Standard 8-1: There must be sufficient support and financial resources to attract and retain high quality faculty and provide the means for them to maintain competence as teachers and scholars.

- Describe how your program meets this standard. If it does not explain the main causes and plans to rectify the situation.
- Describe the level of adequacy of secretarial support, technical staff and office equipment.

Standard 8-2: There must be an adequate number of high quality graduate students, research assistants and Ph.D. students

- Provide the number of graduate students, research assistants and Ph.D students for the last three years.
- Provide the faculty: graduate student ratio for the last three years.

Standard 8-3: Financial resources must be provided to acquire and maintain Library holdings, laboratories and computing facilities.

- Describe the resources available for the library.
- Describe the resources available for laboratories.
- Describe the resources available for computing facilities.

CRITERION 9:   RESEARCH, DEVELOPMENT & INNOVATION

The hallmark of a university is the creation of knowledge. The universities through Research, Development & Innovation activities can help the country to become a knowledge economy. The target can be achieved by meeting following standards.

Standard 9-1: The University should provide an environment which is encouraging and conducive for the RD&I activities. Mention the institutional facilities and incentives for the RD&I

Standard 9-2: The faculty should publish their research work in the journals of high repute with high Impact Factor (ISI, Scopus Refereed) and present them in high level conferences. Attach the detailed list of publications in Int'l and national journals and proceedings of the conferences*.*

Standard 9-3: The faculty should engage in collaborative research projects at national and international level and have a detailed account of projects (completed, on-going and submitted for funding). *Include the data about the projects and funding in the report.*

Standard 9-4: The department should support faculty in establishing university–industry linkage and create patent. The relevant information be included in the report.

REFERENCES

i.   ABET, Self Study Questionnaire for Review of Engineering Programs.

ii.   David, D. "IS There an Academic Audit in The Future: Reforming Quality Assurance in U.S. Higher Education" Change, pp. 35-41, July/August, 2000.

iii.   Diamond, R.M., Designing & Assessing Courses & Curricula: A practical Guide; Jossey-Bass Inc. Publishers, Revised Edition, 1198.

iv.   EI-Khawas, E. Campus Trends, Higher Education Panel Report No. 85. Washington D.C.: American Council on Education, 1995.

v.   Lusthaus, C., Adrien, Anderson, G., and Carden, F., Enhancing Organizational Performance; International Development Research Center, Ottawa, Canada, 1999.

vi.   Quality Assurance Agency, University of Nottingham, Continuation Audit, Analytical Account, November, 1999.

vii.   Palomba, C. A and Banta T. B., Assessment Essentials, Jossey-Bass Inc. Publishers, 1999.

viii.   The Task Force on Assessment and program improvement, at The University of Illinois, Urbana Champaign, http://www.oir.uiuc.edu/assessment/reports/taskforce-report.html. August , 1997.

ix.   The University of Melbourne, Evaluation Cycle Reference Group, 2000.

x.   Troy M., and Lowe P.A., Texas A&M University Assessment Manualt http://www.tamu.edu/marshome/assess/Manual.html .

Appendix A

**Academic Requirements
and Implementation plan**

Table A.1: Minimum Requirements for Each Program (Program Semester Credit hours)

Program	Math & Basic Science	Engineering Topics	General Education	Others

- **HEC requirements**
- **Program Requirements**
- **Deviations**
- **Justifications for Deviations**

Table A.2   Assessment Results Implementation Plan Summary

AT Finding	Corrective Action	Implementation Date	Responsible Body	Resources Needed
1.				
2.				
3.				

Chairman's Comments

Name and Signature

Dean's Comments

Name and Signature

QEC Comments

Name and Signature

Appendix B

Format of Faculty Members' Resume

Faculty Resume

Name:	_____
Personal:	May include address(s) and phone number(s) and other personal information that the candidate feels is pertinent.
Experience	List current appointment first, each entry as follows: Date, Title, Institutions.
Honors and Awards	List honors or awards for scholarship or professional activity.
Memberships	List memberships in professional and learned societies, indicating offices held, committees, or other specific assignments.
Graduate Students **Postdocs** **Undergraduate Students** **Honor Students**	List supervision of graduate students, postdocs and undergraduate honors theses showing: Years Degree Name Show other information as appropriate and list membership on graduate degree committees.
Service Activity	List University and public service activities.
Brief Statement of Research Interest	May be as brief as a sentence or contain additional details up to one page in length.

Publications	List publications in standard bibliographic format with earliest date first:
	
	• Manuscripts accepted for publication should be included under appropriate category as "In press;"
	• Segment the list under the following standard headings:
	    o Articles published by refereed journals.
	    o Books
	    o Scholarly and / or creative activity published through a refereed electronic venue.
	    o Contribution to edited volumes.
	    o Papers published in refereed conference proceedings.
	    o Papers of extended abstracts published in conference proceedings. (refereed on the basis of abstract)
	    o Articles published in popular press.
	    o Articles appearing in in-house organs.
	    o Research reports submitted to sponsors.
	    o Articles published in non-refereed journals.
	    o Manuscripts submitted for publication. (include where and when submitted)

Research Grants and Contracts	Entries should include: Date Title Agency / Organization Total Award Amount Segment the list under following headings: • Completed • Funded and in progress • In review
Other Research or Creative Accomplishments	List patents, software, new products developed, etc.
Selected Professional Presentations	

Appendix C

Samples of Survey Forms

*(Each department can modify the
forms to suit its program outcomes)*

Proforma - 1

Student Course Evaluation Questionnaire
(To be filled by each Student at the time of Course completion)

Department _____Course No _____

Course Title _____Teacher Name:_____

Year of Study _____ Semester / Term _____

Please give us your views so that Course quality can be improved. You are encouraged to be frank and constructive in your comments

CORE QUESTIONS

Course Content and Organization	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. The course objectives were clear	◯	◯	◯	◯	◯
2. The Course workload was manageable	◯	◯	◯	◯	◯
3. The Course was well organized (e.g. timely access to materials, notification of changes, etc.)	◯	◯	◯	◯	◯
4. Comments					

Student Contribution					
5. Approximate level of your own attendance during the whole Course	◯ <20%	◯ 21-40%	◯ 41-60%	◯ 61-80%	◯ >81%
	Strongly Agree	Agree	uncertain	Disagree	Strongly Disagree
6. I participated actively in the Course	◯	◯	◯	◯	◯
7. I think I have made progress in this Course	◯	◯	◯	◯	◯
8. Comments					

Learning Environment and Teaching Methods	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
9. I think the Course was well structured to achieve the learning outcomes (there was a good balance of lectures, tutorials, practical etc.)	◯	◯	◯	◯	◯
10. The learning and teaching methods encouraged participation.	◯	◯	◯	◯	◯
11. The overall environment in the class was conducive to learning.	◯	◯	◯	◯	◯
12. Classrooms were satisfactory	◯	◯	◯	◯	◯
13. Comments					

Learning Resources	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
14. Learning materials (Lesson Plans, Course Notes etc.) were relevant and useful.	○	○	○	○	○
15. Recommended reading Books etc. were relevant and appropriate	○	○	○	○	○
16. The provision of learning resources in the library was adequate and appropriate	○	○	○	○	○
17. The provision of learning resources on the Web was adequate and appropriate (if relevant)	○	○	○	○	○
18. Comments					

Quality of Delivery	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
19. The Course stimulated my interest and thought on the subject area	○	○	○	○	○
20. The pace of the Course was appropriate	○	○	○	○	○
21. Ideas and concepts were presented clearly	○	○	○	○	○
22.Comments					

Assessment	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
23. The method of assessment were reasonable	○	○	○	○	○
24. Feedback on assessment was timely	○	○	○	○	○
25. Feedback on assessment was helpful	○	○	○	○	○
26. Comments					

Additional Core Questions

Instructor / Teaching Assistant Evaluation	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
27. I understood the lectures	○	○	○	○	○
28. The material was well organized and presented	○	○	○	○	○
29. The instructor was responsive to student needs and problems	○	○	○	○	○
30. Had the instructor been regular throughout the course?	○	○	○	○	○

Tutorial	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
30. The material in the tutorials was useful	○	○	○	○	○
31. I was happy with the amount of work needed for tutorials	○	○	○	○	○
32. The tutor dealt effectively with my problems	○	○	○	○	○

Practical	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
33. The material in the practicals was useful	◯	◯	◯	◯	◯
34. The demonstrators dealt effectively with my problems.	◯	◯	◯	◯	◯

Overall Evaluation

35.The best features of the Course were:

36.The Course could have been improved by:

Equal Opportunities Monitoring (Optional)

37. The University does not tolerate discrimination on any irrelevant distinction (e.g. race, age, gender) and is committed to work with diversity in a wholly positive way. Please indicate below anything in relation to this Course which may run counter to this objective:

Demographic Information: (Optional)

38. Full/part time study: Full Time ◯   Part Time ◯

39.Do you consider yourself to be disabled: Yes ◯   No ◯

40. Domicile:

41.Gender: Male ◯   Female ◯

42. Age Group: less than 22 ◯   22-29 ◯   over 29 ◯

43. Campus: Distance Learning/ Collaborative ◯

THANK YOU

Proforma 2

Faculty Course Review Report
(To be filled by each teacher at the time of Course Completion)

For completion by the course instructor and transmission to Head of Department of his/her nominee
(Dept. Quality Officer) together with copies of the Course Syllabus outline

Department:			Faculty:	
Course Code:		Title:		
Session:		Semester:	Autumn ○ Spring ○	Summer ○
Credit Value:		Level:		Prerequisites:
Name of Course Instructor:		No. of Students Contact Hours	Lectures	Other (Please State)
			Seminars	
Assessment Methods: give precise details (no & length of assignments, exams, weightings etc)				

Distribution of Grade/Marks and other Outcomes: (adopt the grading system as required)

Undergraduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	F	No Grade	Withdrawal	Total
No. of Students										
Post-Graduate	Originally Registered	%Grade A	%Grade B	%Grade C	D	E	No Grade		Withdrawal	Total
No. of Students										

Overview/Evaluation (Course Co-coordinator's Comments)
Feedback: first summarize, then comment on feedback received from:
(These boxes will expand as you type in your answer.)

1) Student (Course Evaluation) Questionnaires

2) External Examiners or Moderators (if any)

3) Student /staff Consultative Committee (SSCC) or equivalent, (if any)

4) Curriculum: comment on the continuing appropriateness of the Course curriculum in relation to the intended learning outcomes (course objectives) and its compliance with the HEC Approved / Revised National Curriculum Guidelines

5) Assessment: comment on the continuing effectiveness of method(s) of assessment in relation to the intended learning outcomes (Course objectives)

6) Enhancement: comment on the implementation of changes proposed in earlier Faculty Course Review Reports

7) Outline any changes in the future delivery or structure of the Course that this semester/term's experience may prompt

Name: _____ Date: _____
(Course Instructor)

Name: _____ Date: _____
(Head of Department)

Proforma 3

Survey of Graduating Students

(To be filled out by graduating students in last semester / year before the award of degree)

The survey seeks graduating students' input on the quality of education they received in their program and the level of preparation they had at university. The purpose of this survey is to assess the quality of the academic programs. We seek your help in completing this survey.

A: Very satisfied   B: Satisfied   C: Uncertain   D: Dissatisfied   E: Very dissatisfied

S#	Attributes	A	B	C	D	E
1	The work in the program is too heavy and induces a lot of pressure.	○	○	○	○	○
2	The program is effective in enhancing team-working abilities.	○	○	○	○	○
3	The program administration is effective in supporting learning.	○	○	○	○	○
4	The program is effective in developing analytical and problem solving skills.	○	○	○	○	○
5	The program is effective in developing independent thinking.	○	○	○	○	○
6	The program is effective in developing written communication skills	○	○	○	○	○
7	The program is effective in developing planning abilities.	○	○	○	○	○
8	The objectives of the program have been fully achieved.	○	○	○	○	○
9	Whether the contents of curriculum are advanced and meet program objectives	○	○	○	○	○
10	Faculty was able to meet the program objectives	○	○	○	○	○
11	Environment was conducive for learning	○	○	○	○	○
12	Whether the Infrastructure of the department was good	○	○	○	○	○
13	Whether the program was comprised of Co-curricular and extra-curricular activities	○	○	○	○	○
14	Whether scholarships/ grants were available to students in case of hardship	○	○	○	○	○

Answer question 15 if applicable.

15	The internship experience is effective in enhancing	○	○	○	○	○

    (a)   Ability to work in teams
    (b)   Independent thinking
    (c)   Appreciation of ethical Values
    (d)   Professional development
    (e)   Time management skills
    (f)   Judgment
    (g)   Discipline
    (h)   The link between theory and practice

16.   What are the best aspects of your program?

_____
_____
_____

17.   What aspects of your program could be improved?

_____
_____
_____

You may use additional sheets for questions 16 & 17 if needed.

Proforma 4

Research Student Progress Review Form

(To be filled out by Master/ M.Phil / Ph.D Research Students on six monthly basis)

To be submitted by the HoD / Dept. Quality Officer to the QEC

For Research Student to Complete:

1. Date of admission to the department

2. Date of initiation of research

3. Date of completion of Course work

4. Number of credit hours completed

5. Date of Synopsis Defense

6. Cumulative Grade Point Average (CGPA) secured

7. Please outline details of progress in your research since your last review (including any research publications):

8. Do you have any comments on the level of supervision received?

9. What do you plan to achieve over the next 6 months?

10. Do you have any comments on generic or subject-specialist training you may have received or would like to receive internally and / or externally?

11. Do you have easy access to sophisticated scientific equipment?

12. Do you have sufficient research material / commodities available?

Student _____   Date: _____

Supervisory Committee Comments

(Please comment on and benchmark the student's progress against your University's internal and

external HEC Quality Criteria for Master/PhD/MPhil Studies)

Principal Supervisor: _____   Date: _____

Co-Supervisor: _____   Date: _____

Co-Supervisor: _____   Date: _____

Head of Department Comments:

Signature: _____   Date: _____

Director, Board of Research Studies (or equivalent) Comments:

Signature: _____   Date: _____

Dean/Director, QEC Action: (including monitoring of Follow-up action) Date: _____

Faculty Survey
(To be submitted on annual basis by each faculty member)

The Purpose of this survey is to assess faculty members' satisfaction level and the effectiveness of programs in place to help them progress and excel in their profession. We seek your help in completing this survey and the information provided will be kept in confidence. **Indicate how satisfied are you with each of the following aspects of you situation at your department?**

A: Very satisfied   B: Satisfied   C: Uncertain   D: Dissatisfied   E: Very dissatisfied.

S#	Attributes	A	B	C	D	E
1	Your mix of research, teaching and community service.	○	○	○	○	○
2	The intellectual stimulation of your work.	○	○	○	○	○
3	Type of teaching / research you currently do	○	○	○	○	○
4	Your interaction with students.	○	○	○	○	○
5	Cooperation you receive from colleagues.	○	○	○	○	○
6	The mentoring available to you.	○	○	○	○	○
7	Administrative support from the department.	○	○	○	○	○
8	Providing clarity about the faculty promotion process.	○	○	○	○	○
9	Your prospects for advancement and progress through ranks	○	○	○	○	○
10	Salary and compensation package	○	○	○	○	○
11	Job security and stability at the department	○	○	○	○	○
12	Amount of time you have for yourself and family.	○	○	○	○	○
13	The overall climate at the department	○	○	○	○	○
14	Whether the department is utilizing your experience and knowledge	○	○	○	○	○

15.   What are the best programs / factors currently available in your department that enhance your motivation and job satisfaction?

_____
_____
_____

16.   Suggest programs / factors that could improve your motivation and job satisfaction?

_____
_____
_____

Information about faculty member

i.   Academic rank:

A: Professor   B: Associate Professor   C: Assistant Professor   D: Lecturer
E: Other

ii.   Years of service:
A: 1-5   B: 6-10   C: 11-15   D: 16-20   E: >20

Name: _____ Signature: _____ Date: _____

Proforma 6

Survey of Department Offering Ph.D. Programs

The following information is required for EACH Department in which a Ph.D. program is offered.

1	**General Information:**	
1.1	Name of Department	
1.2	Name of Faculty	
1.3	Date of initiation of Ph.D. program	
1.4	Total number of academic journals subscribed in area relevant to Ph.D. program.	
1.5	Number of Computers available per Ph.D. student	
1.6	Total Internet Bandwidth available to all the students in the Department.	
2	**Faculty Resources:**	
2.1	Number of faculty members holding Ph.D. degree in the department.	
2.2	Number of HEC approved Ph.D. Advisors in the department.	
3	**Research Output:**	
3.1	Total number of articles published last year in International Academic Journals that are authored by faculty members and students in the department.	
3.2	Total number of articles published last year in Asian Academic Journals that are authored by faculty members and students in the department.	
3.3	Total number of ongoing research projects in the department funded by different organizations	
3.4	Number of post-graduate students in the department holding scholarships/fellowships.	
3.5	Total Research Funds available to the Department from all sources.	
3.6	Number of active international linkages involving exchange of researchers/students/faculty etc. (Attach Details).	

4	**Student Information:**	
4.1	Number of Ph.D. degrees conferred to date to students from the Department during the past three academic years.	
4.2	Number of Ph.D. students currently enrolled in the department.	
4.3	Ratio of number of students accepted to total number of applicants for Ph.D. Program.	
5	**Program Information**	
5.1	Entrance requirements into Ph.D. Program (M.Sc. / M.Phil.) Indicate subjects or M.Sc. / M.Phil.	
5.2	Is your Ph.D. program based on research only? (Y/N)	
5.3	Maximum number of years in which a Ph.D. degree has to be completed after initial date of enrollment in Ph.D. program.	
5.4	Total number of post M.Sc. (16 year equivalent) courses required for Ph.D.	
5.5	Total number of M.Phil. level courses taught on average in a Term / Semester.	
5.6	Total number of Ph.D. level courses taught on average in a Term / Semester.	
5.7	Do your students have to take/write:	
	a. Ph.D. Qualifying examination (Y/N)	
	b. Comprehensive examination (Y/N)	
	c. Research paper in HEC approved Journal	
	d. Any other examination (Y/N)	
5.8	Total number of International examiners to which the Ph.D. dissertation is sent.	
5.9	How is the selection of an examiner from technologically advanced countries carried out?	
5.10	Is there a minimum residency requirement (on campus) for award of Ph.D. degree?	
6	**Additional Information**	
6.1	Any other information that you would like to provide.	

Proforma 7

Alumni Survey

(To be filled by Alumni - after the completion of each academic year)

The purpose of this survey is to obtain alumni input on the quality of education they received and the level of preparation they had at University. The purpose of this survey is to assess the quality of the academic program. We seek your help in completing this survey.

A: Excellent B: Very good C: Good D: Fair E: Poor

S#	Attributes	A	B	C	D	E
	I. Knowledge					
1	Math, Science, Humanities and professional discipline, (if applicable)	○	○	○	○	○
2	Problem formulation and solving skills	○	○	○	○	○
3	Collecting and analyzing appropriate data	○	○	○	○	○
4	Ability to link theory to practice.	○	○	○	○	○
5	Ability to design a system component or process	○	○	○	○	○
6	IT knowledge	○	○	○	○	○
	II Communications Skills					
1	Oral communication	○	○	○	○	○
2	Report writing	○	○	○	○	○
3	Presentation skills	○	○	○	○	○
	III Interpersonal Skills					
1	Ability to work in teams.	○	○	○	○	○
2	Ability to work in arduous /Challenging situation	○	○	○	○	○
3	Independent thinking	○	○	○	○	○
4	Appreciation of ethical Values	○	○	○	○	○
	IV Management /leadership Skills					
	Resource and Time management skills	○	○	○	○	○
	Judgment	○	○	○	○	○
	Discipline	○	○	○	○	○

V General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs. (New courses that you would recommend and courses that you did not gain much from)

_____
_____
_____

VI. Career Opportunities

VII. Department Status

1	Infrastructure	○	○	○	○	○
2	Faculty	○	○	○	○	○
3	Repute at National level	○	○	○	○	○
4	Repute at international level	○	○	○	○	○

VIII Alumni Information

1. Name (Optional)_____

2. Name of organization_____

3. Position in organization_____

4. Year of graduation_____

Proforma 8

Employer Survey

(To be filled in by Employer - after the completion of each academic year)

The purpose of this survey is to obtain employers' input on the quality of education University of _____ is providing and to assess the quality of the academic program. The survey is with regard to University of _____ graduates employed at your organization. We seek your help in completing this survey.

A: Excellent   B: Very good   C: Good   D: Fair   E: Poor

S#	Attributes	A	B	C	D	E
	I. Knowledge					
1	Math, Science, Humanities and professional discipline, (if applicable)	○	○	○	○	○
2	Problem formulation and solving skills	○	○	○	○	○
3	Collecting and analyzing appropriate data	○	○	○	○	○
4	Ability to link theory to practice.	○	○	○	○	○
5	Ability to design a system component or process	○	○	○	○	○
6	Computer knowledge.	○	○	○	○	○
	II. Communications Skills					
1	Oral communication	○	○	○	○	○
2	Report writing	○	○	○	○	○
3	Presentation skills	○	○	○	○	○
	III. Interpersonal Skills					
1	Ability to work in teams.	○	○	○	○	○
2	Leadership	○	○	○	○	○
3	Independent thinking	○	○	○	○	○
4	Motivation	○	○	○	○	○
5	Reliability	○	○	○	○	○
6	Appreciation of ethical values	○	○	○	○	○
	IV. Work skills					
	Time management skills	○	○	○	○	○
	Judgment	○	○	○	○	○
	Discipline	○	○	○	○	○

V. General Comments

Please make any additional comments or suggestions, which you think would help strengthen our programs for the preparation of graduates who will enter your field. Did you know as to what to expect from graduates?

_____
_____
_____

VI.   Information About Organization

1. Organization Name_____

2. Type of Business_____

3. Number of Graduates (specify the program) in your Organization:

Proforma 9

Faculty Resume

Name	
Personal	*May include address(s) and phone number(s) and other personal information that the candidate feels is pertinent.*
Experience	List current appointment first, each entry as follows: *Date, Title, Institution.*
Honor and Awards	List honors or awards for scholarship or professional activity.
Memberships	*List memberships in professional and learned Societies, indicating offices held, committees, or other specific assignments.*
Graduate Students Postdocs Undergraduate Students *Honour Students*	*List supervision of graduate students, postdocs and undergraduate honors theses showing:* **Years Degree Name** Show other information as appropriate and list membership on graduate degree committees.
Service Activity	*List University and public service activities.*
Brief Statement of Research Interest	*May be as brief as a sentence or contain additional details up to one page in length.*

Publications	*List publications in standard bibliographic format with earliest date first.*
	
	   o *Manuscripts accepted for publication should be included under appropriate category as "in press;"*
	   o *Segment the list under the following standard headings:*
	
	      • *Articles published by refereed journals.*
	      • *Books.*
	      • *Scholarly and / or creative activity published through a refereed electronic venue.*
	      • *Contribution to edited volumes.*
	      • *Papers published in refereed conference proceedings.*
	      • *Paper or extended abstracts published in conference proceedings. (refereed on the basis of abstract)*
	      • *Articles published in popular press.*
	      • *Articles appearing in in-house organs.*
	      • *Research reports submitted to sponsors.*
	      • *Articles published in non-refereed journals.*
	      • *Manuscripts submitted for publication. (include where and when submitted).*

Research Grants and Contracts.	*Entries should include:*
	
	Date Title Agency / Organization
	Total Award Amount
	Segment the list under following headings:
	   • *Completed*
	   • *Funded and in progress*
	   • *In review*

Other Research or Creative Accomplishments	*List patents, software, new products developed, etc.*
Selected Professional Presentations	

Teacher Evaluation Form
(To be filled by the students)

Course Title and Number: _____

Name of Instructor:_____ **Semester**_____

Department: _____ **Degree** _____

Use the scale to answer the following questions below and make comments

A: Strongly Agree   B: Agree   C: Uncertain   D: Disagree   E: Strongly Disagree

S#	Instructor:	A	B	C	D	E
1	The Instructor is prepared for each class	○	○	○	○	○
2	The Instructor demonstrates knowledge of the subject	○	○	○	○	○
3	The Instructor has completed the whole course	○	○	○	○	○
4	The Instructor provides additional material apart from the textbook	○	○	○	○	○
5	The Instructor gives citations regarding current situations with reference to Pakistani context.	○	○	○	○	○
6	The Instructor communicates the subject matter effectively	○	○	○	○	○
7	The Instructor shows respect towards students and encourages class participation	○	○	○	○	○
8	The Instructor maintains an environment that is conducive to learning	○	○	○	○	○
9	The Instructor arrives on time	○	○	○	○	○
10	The Instructor leaves on time	○	○	○	○	○
11	The Instructor is fair in examination	○	○	○	○	○
12	The Instructor returns the graded scripts etc. in a reasonable amount of time	○	○	○	○	○
13	The Instructor was available during the specified office hours and for after class consultations	○	○	○	○	○
14	**Course:**					
15	The Subject matter presented in the course has increased your knowledge of the subject	○	○	○	○	○
16	The syllabus clearly states course objectives requirements, procedures and grading criteria	○	○	○	○	○
17	The course integrates theoretical course concepts with real-world applications	○	○	○	○	○
18	The assignments and exams covered the materials presented in the course	○	○	○	○	○
19	The course material is modern and updated	○	○	○	○	○

Comments:
Instructor:

_____

_____

_____

Course:

_____

_____

_____

Appendix D

Sample of a Matrix Relating Program Outcomes to Program Objectives

Sample of a Matrix Relating Program Outcomes to Program Objectives

Program learning outcomes	Program objectives				
	Skills in critical thinking, problem solving and communication	Initiate and manage change	Understand professional ethics and responsibility	Employ I. S. Technology	Enable organizations to make optimal decision making
	x			x	x
	x				x
		x		x	x
					x
	x	x			
Use up to date tools				x	x
Life long learning	x		x	x	
Professional ethics and responsibility	x		x		

Notes:-

1.   Knowledge, understanding, skills and other attributes a student is required to have developed on completing the program be included under Program Learning Outcomes.

2.   Program objectives as achieved by the students on completing the program are to be shown by marking 'x'.