

## HEC Requirements for Self Assessment Report

### Criterion 1: Program Mission, Objectives and Outcomes

Each program must have a mission, measurable objectives and expected outcomes for graduates. Outcomes include outcomes for 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 1.0: The program must have documented Vision and Mission

- Document programme Vision in line with department and university vision.
- Documents programme Mission in line with department and university mission statement.

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

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

Objectives	How Measured	When Measured	Improvements Identified (Based on outcome Examination)	Improvements Made
1	e.g. Survey			

	Forms			
2	Any other means/ tool			
3				
4				
5				

**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.

- List program outcomes which must be based on measurable behavior. It should clearly state as to what attributes would the degree holder of the programme possess after completing the degree.
- Describe how the Program Outcomes support the Program Objectives. In **Table 4.2** show the outcomes that are aligned with each objective.

Program Objectives	Program Outcomes			
	1	2	3	4
1	×	×		
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.
  - Conducting **a survey of graduating seniors** every semester.
  - Conduct **a survey of alumni** every two years.
  - Conduct **a survey of employers** every two years.
  - Carefully designed questions asked during senior projects presentations. These questions should be related to program outcomes.
  - Outcome examinations.

The program outcomes are the byproducts of the program objectives and are interrelated. An example of interrelation between the program objectives and the program outcomes is shown in the following table.

Program Objectives	Program Outcomes										
	1	2	3	4	5	6	7	8	9	10	11
1	◇	◇	–	–	–	–	*	*	–	◇	◇
2a	–	–	◇	◇	–	–	*	*	–	*	◇
2b	–	–	◇	◇	–	◇	*	–	◇	*	–

**Legend:** \* Denotes **Substantial** Contribution to the objectives

◇ Denotes **Moderate** Contribution to the objectives

– Denotes **No** Contribution to the objectives

**Standard 1-3:** The results program’s assessment and the extent to which they are used to improve the program must be documented. **(To be addressed after completing all criteria)**

- Describe the actions taken based on results of periodic assessments.
- Describe major future program improvements 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 rate.
- Indicate percentage of employers that are strongly satisfied with the performance of the department’ 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 publication, 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.

## **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.

**Standard 2.0:** There must be an **organized curriculum document** containing:

**A. Title of Degree program**

**B. Duration of study**

**C. Total number of credit hour**

**D. Degree plan** with a flow chart showing the prerequisites, core, and elective courses.

**E. Curriculum breakdown** in terms of mathematics and basic sciences, major requirements, social sciences and other requirements. (Table 4.3)

Semester	Course No:	Category (Credit Hours)				
		Maths & Basic Sciences		Core Courses	Humanities & Social Sciences	Technical Electives
		Maths	Basic Sciences			

Total						
Minimum Requirements						

**Table 4.3 Curriculum course requirements**

F. For each course in the program that can be counted for credit provide 1-2 pages specifying the following:

- Course title
- Course outcomes
- Catalog description
- Text book (s) and references
- Syllabus breakdown in lectures (Table 4.0-additional)
- 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.

**Template for Syllabus Breakdown in Lectures**

**Name of the Course:** \_\_\_\_\_ **Full Course/Shared Course:** \_\_\_\_\_

**Portions Assigned:** \_\_\_\_\_

**Course Objectives:** At the end of the course, student will be able to:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

5. \_\_\_\_\_  
 \_\_\_\_\_

S.No	Topic	Duration	Teaching Method	Assessment

**Table- 4.0 (Additional)**

**Standard 2-1:** The curriculum must be consistent and supports the program’s documented objectives.

- Describe how the program content (courses) meets the program objectives.
- Complete the **Table 4.4** linking courses to program outcomes. List the courses and tick against relevant outcomes. A sample of such a matrix is shown below.

Courses or Group of Courses	Program Outcomes			
	1	2	3	4
1.				
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. (Table 4.5)

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 HEC/ or the respective accreditation body. 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. (In case of Humanities program, General Math requirements must be fulfilled.) Examples of such requirements are given in Table A.1, Appendix A.

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

Programs	Maths & Basic Sciences	Engineering Topics	General Education	Others

**Table A.1 Minimum Requirements for Each Program**

(Program Semester Credit hours)

- HEC Requirements (Accreditation Council Requirements)
- Program Requirements
- Deviations
- Justification for Deviations

**Standard 2-6:** Information technology component of the curriculum must be integrated throughout the program.

- Indicate the courses within the program that will satisfy the standard.
- Describe how they are applied and integrated throughout 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.

### **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:

***There must be adequate laboratories fully equipped to complete the program.***

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)
- Major Apparatus
- Major Equipments
- 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

**Standard 3-0:** Manuals for experiments should be available for Assessment Team. Instructions should be displayed in the lab.

**Standard 3-0:** 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 3-0:** 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.
- Describe number of computers available for faculty.
- Describe number of computers available for students
- Describe how students access to digital library through institute/college
- Describe how students access to digital library through home

#### **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 effective 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.
- *Course outline with dates for each session must be provided to students before the start of the program.*
- *There must be some mechanism in place for faculty availability for students' consultation. i. e. faculty consultation hours should be posted for students.*

**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 of 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.
- Describe how students not coming up to the standard are treated and/or supported.
- 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 Teachers' evaluation is conducted and how results are used for improvements.*
- *Attach summary of the results of Teachers' Evaluation by students. (Based on Performa 10)*
- *There must be some mechanism for faculty evaluation through Head of the Department (HOD) and or Peer. ( Peer and HOD Evaluation Performa enclosed)*
- 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 focus on students learning.
- *Describe that course material is provided to students.*
- *Indicate percentage of students' satisfaction regarding course material, delivery, resources etc. Use Graduating Students' Survey.*
- 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 graduated 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 graduated meet the program requirements.
- Complete the following **Table.5.0:**

	<b>Program Outcomes</b>	<b>Describe how it was achieved</b>
<b>1</b>		
<b>2</b>		
<b>3</b>		

**Table.5.0**

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

<b>Program Area of Specialization</b>	<b>Courses in the Area and Average Number of Sections per Year</b>	<b>Number of faculty Members in Each Area</b>	<b>Number of Faculty with Ph. D Degree</b>
<b>Area 1.</b>			
<b>Area 2.</b>			
<b>Area 3.</b>			
<b>Area 4.</b>			
<b>Total</b>			

**Table 4.6: Faculty Distribution by Program Areas**

**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 and based on these 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.
- Indicate how effective these programs are.

### **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.