SELF ASSESSMENT REPORT (SAR)

TIER - II UG Engineering Programs

First Time Accreditation

(From 1st June, 2015)

Emphasis on

How to prepare the SAR
and
effect improvements during the process

SAR Context

- Provides preparedness status at I/P level for the NBA visit,
- Provides the first impression about the I/P to the evaluation team,
- Presents crisp program status to the evaluation team and addresses process and the extent to which, a program meets each criterion,
- Provides documented evidences, which the evaluation team maps/matches with the visual /oral evidences during the visit.

SAR Contents

Serial Code & Link to the Item	Item
PART A	Institutional Information
PART B	Criteria Summary
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2	Program Curriculum and Teaching – Learning Processes
3	Course Outcomes and Program Outcomes
4	Students' Performance
5	Faculty Information and Contributions
6	Facilities and Technical Support
7	Continuous Improvement
	Institute Level Criteria
8	First Year Academics
9	Student Support Systems
10	Governance, Institutional Support and Financial Resources
PART C	Declaration by the Institution
Annexure- I	Program Outcomes (POs) & Program Specific Outcomes (PSOs)

PART A: **Institutional Information**

1. **Name and Address of the Institution:**
2. **Name and Address of the Affiliating University:**
3. **Year of establishment of the Institution:**
4. **Type of the Institution:**

University	☐
Deemed University	☐
Government Aided	☐
Autonomous	☐
Affiliated	☐

PART A: **Institutional Information**

5. Ownership Status:

- Central Government ☐
- State Government ☐
- Government Aided ☐
- Self financing ☐
- Trust ☐
- Society ☐
- Section 25 Company ☐
- Any Other (Please specify) ☐

Provide Details:

6. Other Academic Institutions of the Trust/Society/Company etc., if any:

Name of the Institution(s)	Year of Establishment	Programs of Study	Location

* **Note:** Add rows as needed

7. Details of all the programs being offered by the institution under consideration:

S.No.	Program Name	Year of Start	Intake	Increase in intake, if any	Year of increase	AICTE Approval	Accreditation Status*

Note: Add rows as needed

•***Write applicable one:***

•Applying first time

•Granted provisional accreditation for two years for the period(specify period)

•Granted accreditation for 5 years for the period (specify period)

•Not accredited (specify visit dates, year)

•Withdrawn (specify visit dates, year)

•Not eligible for accreditation

•Eligible but not applied

8. Programs to be considered for Accreditation vide this application:

S. No.	Program Name
1.	
N.	

9.Total number of employees in the institution:

A. Regular* Employees (Faculty and Staff):

Items		CAY		CAYm1		CAYm2	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M						
	F						
Faculty in Maths, Science & Humanities	M						
	F						
Non-teaching staff	M						
	F						

*** Means –**

- Full time on roll with prescribed pay scale. An employee on contract for a period of more than two years AND drawing consolidated salary equal or higher than applicable gross salary shall only be counted as a regular employee
- Prescribed pay scales means pay scales notified by the AICTE/Central Government and implementation as prescribed by the State Government. In case State Government prescribes lesser consolidated salary for a particular cadre then same will be considered as reference while counting faculty as a regular faculty

CAY: Current Assessment Year
CAYm1: Current Assessment Year minus 1
CAYm2: Current Assessment Year minus 2

B. Contractual Staff Employees (Faculty and Staff): (Not covered in Table A):

Items		CAY		CAYm1		CAYm2	
		Min	Max	Min	Max	Min	Max
Faculty in Engineering	M						
	F						
Faculty in Maths, Science & Humanities	M						
	F						
Non-teaching staff	M						
	F						

10. Total number of Engineering Students:

Item	CAY	CAYm1	CAYm2
Total no. of boys			
Total no. of girls			
Total no. of students			

Instruction:

The data may be categorized in tabular form separately for undergraduate, postgraduate engineering, other program, if applicable

Note:

In case the Institution is running AICTE approved additional courses such as MBA, MCA in the first shift, engineering courses in the second shift, Polytechnic in Second shift etc., separate tables with the relevant heading shall be prepared

11. Vision of the Institution:

12. Mission of the Institution:

13. Contact Information of the Head of the Institution and NBA coordinator, if designated:

1. Name:

   Designation:

   Mobile No:

   Email id:

2. NBA coordinator, if designated:

   Name:

   Designation:

   Mobile No:

   Email id:

PART B - CRITERIA SUMMARY

Criteria No.	Criteria	Weightage /Marks
Program level Criteria		
1.	Vision, Mission and Program Educational Objectives	60 (5+5+10+25+15)
2.	Program Curriculum and Teaching–Learning Processes	120 (20+100)
3.	Course Outcomes and Program Outcomes	120 (20+50+50)
4.	Students' Performance	150 (20+40+15+15+40+20)
5.	Faculty Information and Contributions	200 (20+25+25+25+20+15+30+30+10)
6.	Facilities and Technical Support	80 (30+25+10+5+10)
7.	Continuous Improvement	50 (20+10+10+10)
Institute Level Criteria		
8.	First Year Academics	50 (5+5+10+10+20)
9.	Student Support Systems	50 (5+10+5+5+10+5+10)
10.	Governance, Institutional Support and Financial Resources	120 (40+30+30+20)
	Total	**1000**

CRITERION 1	**Vision, Mission and Program Educational Objectives**	**60**

1.1. State the Vision and Mission of the Department and Institute (5)

- Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations
- Should be written in a simple language, easy to communicate and should define objectives which are out of reach in the present context
- Should be understood and shared by the people within the system
- Department Vision and Mission statements shall be consistent with the Institute Vision and Mission statements

Availability (1) + Appropriateness (2) + Consistency (2)

Few Examples:

1. **IIT Mumbai :**

   Vision:

   To be the fountainhead of new ideas and of innovations in technology and science

   Mission:

   To create an ambience of academic excellence in which new ideas, research and scholarship flourish and from which the leaders and innovators of tomorrow emerge

2. IIT, Delhi:

Vision:

To contribute to India and the World through excellence in scientific and technical education and research; to serve as a valuable resource for industry and society; and remain a source of pride for all Indians

Mission:

To generate new knowledge by engaging in cutting-edge research and to promote academic growth by offering state-of-the-art undergraduate, postgraduate and doctoral programs

To identify, based on an informed perception of Indian, regional and global needs, areas of specialization upon which the institute can concentrate

To undertake collaborative projects which offer opportunities for long-term interaction with academia and industry

To develop human potential to its fullest extent so that intellectually capable and imaginatively gifted leaders can emerge in a range of professions

Few Examples loaded with heavy words:

Vision:

"To be a Centre of Academic Excellence, to provide the best technical education through innovative methods of Teaching - Learning process in a rapidly changing world scenario & to produce high quality professionals with a deep sense of our country's culture, heritage and values"

Mission:

"To provide 'education for living & livelihood' as well as 'education for life' by focusing on the inculcation of human & moral values, to empower learners by providing world class education coupled with leadership and professional skills. Our mission is to transform attitudes, values & priorities by changing mindset, rejuvenate our learners, and infuse positive energy to take up challenges of life"

Few Examples loaded with heavy words:

Vision:

"Empowerment through knowledge"

Mission:

"To inculcate the blend of competence, aptitude of knowledge and investigate flair through devising a supportive surrounding for learners and fairness. This self induced team shall put in honest efforts for it's sustainability"

1.2. State the Program Educational Objectives (PEOs) (5)

- State the Program Educational Objectives (3 to 5)

  Availability & Correctness

Indicative:

Typically under the following five broad categories:

1. **Preparation – Employment/Higher studies**
2. **Core competence – Discipline knowledge**
3. **Breadth – ‘T’ Shaped Engineer**
4. **Professionalism – 3 Ps – Professional value-knowledge-development**
5. **Life long learning – Environment**

1.3. Indicate where the Vision, Mission and PEOs are published and disseminated among stakeholders (10)

- Describe where (websites, curricula, posters etc.) the Vision, Mission and PEOs are published
- Detail the process which ensures awareness among internal and external stakeholders
- Effective process implementation
- Internal stakeholders may include Management, Governing Board Members, faculty, support staff, students etc.
- External stakeholders may include employers, industry, alumni, funding agencies etc.

Adequacy (2) + Process (2) + Extent of Awareness (6)

- Availability on Institute website under relevant program link
- Availability at department notice boards
- HoD Chamber
- Department website, if available
- Availability in department level documents
- Documentary evidence

Vision, Mission and Program Educational Objectives

Internal:

Stakeholder	Purpose
Promoter/Management Governing Board members	- Defining growth plan and road map - Providing physical, human and financial resources - Formulation of policies
Human Resources (Faculty and Support Staff)	- Implementer (Contributor) of Policies - Key contributor in developing/implementing growth plan - Responsible for producing competent graduates/product from the Institution
Students	- Product of the Institution and responsible for creating institute image

Vision, Mission and Program Educational Objectives

External:

Stakeholder	Purpose
Employer	- Employing graduates and making an assessment on competence and industry readiness
Industry	- Employer as well as participant in curriculum development and industry – institute activities
Alumni	- Able to co-relate learning and practice - Provides appropriate to the department/program committee
Funding Agencies	- Provides financial assistance to the Institution and interacts with the Principal Investigator/Faculty of the department /program
Regulatory/Accrediting Authorities	- Prescribes norms and standards to ensure quality assurance and enhancement
Society	- Provides intangible outcome from the Institution perspective

1.4. State the process for defining the Vision and Mission of the Department, and PEOs of the program (25)

- Articulate the process for defining the Vision and Mission of the department and PEOs of the program

Vision and Mission process (10) + PEOs process (15)

Process to ensure:

- Effective participation of Stakeholders
- Effective Process implementation

Documentary evidence

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- **Vision and Mission statement development process may include following steps:**

- **Step I – Brainstorming:**

  1st level - Promoters, Administrators, Faculty

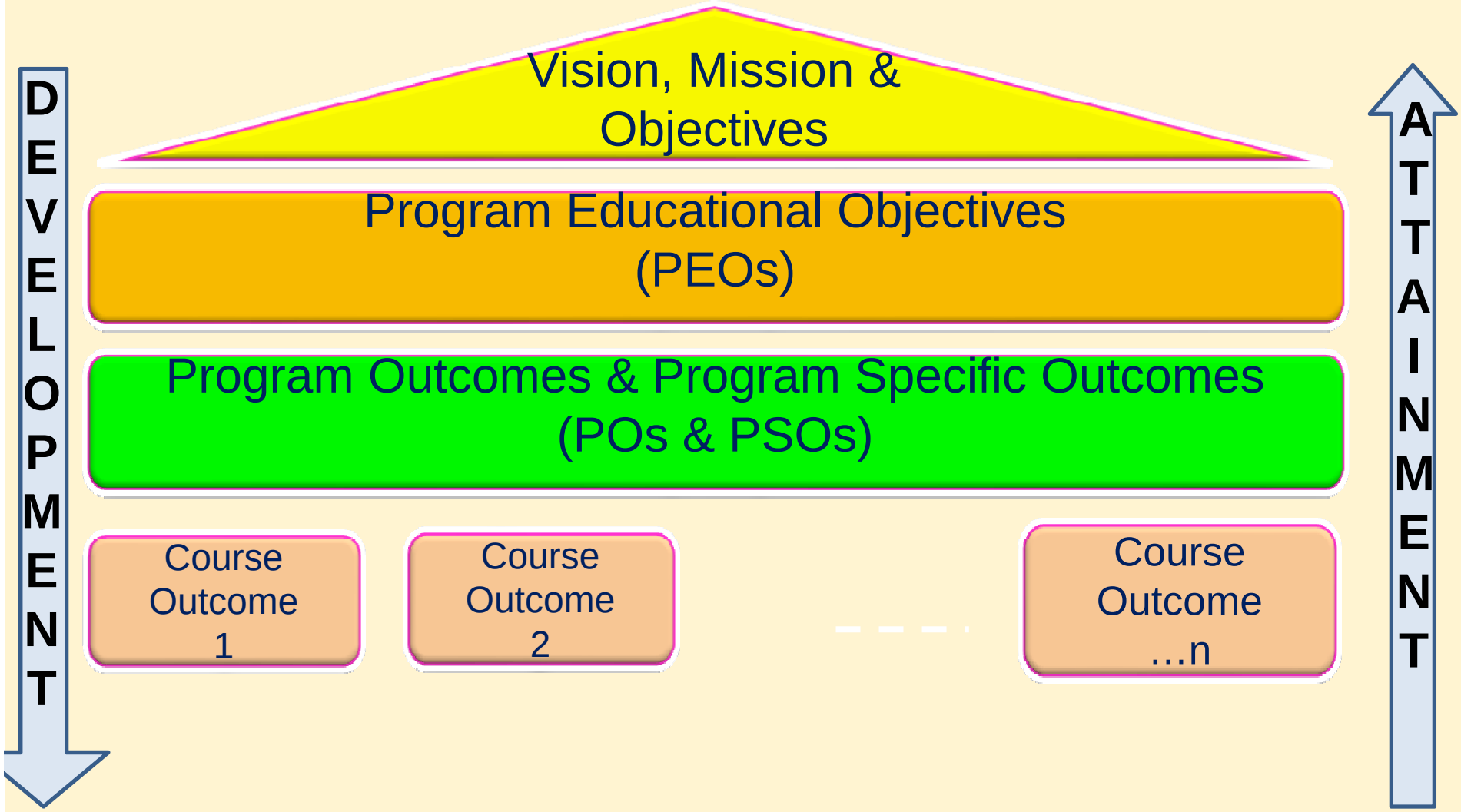
  2nd level – Current Students

  3rd level – Employers, Alumni, Industry Experts

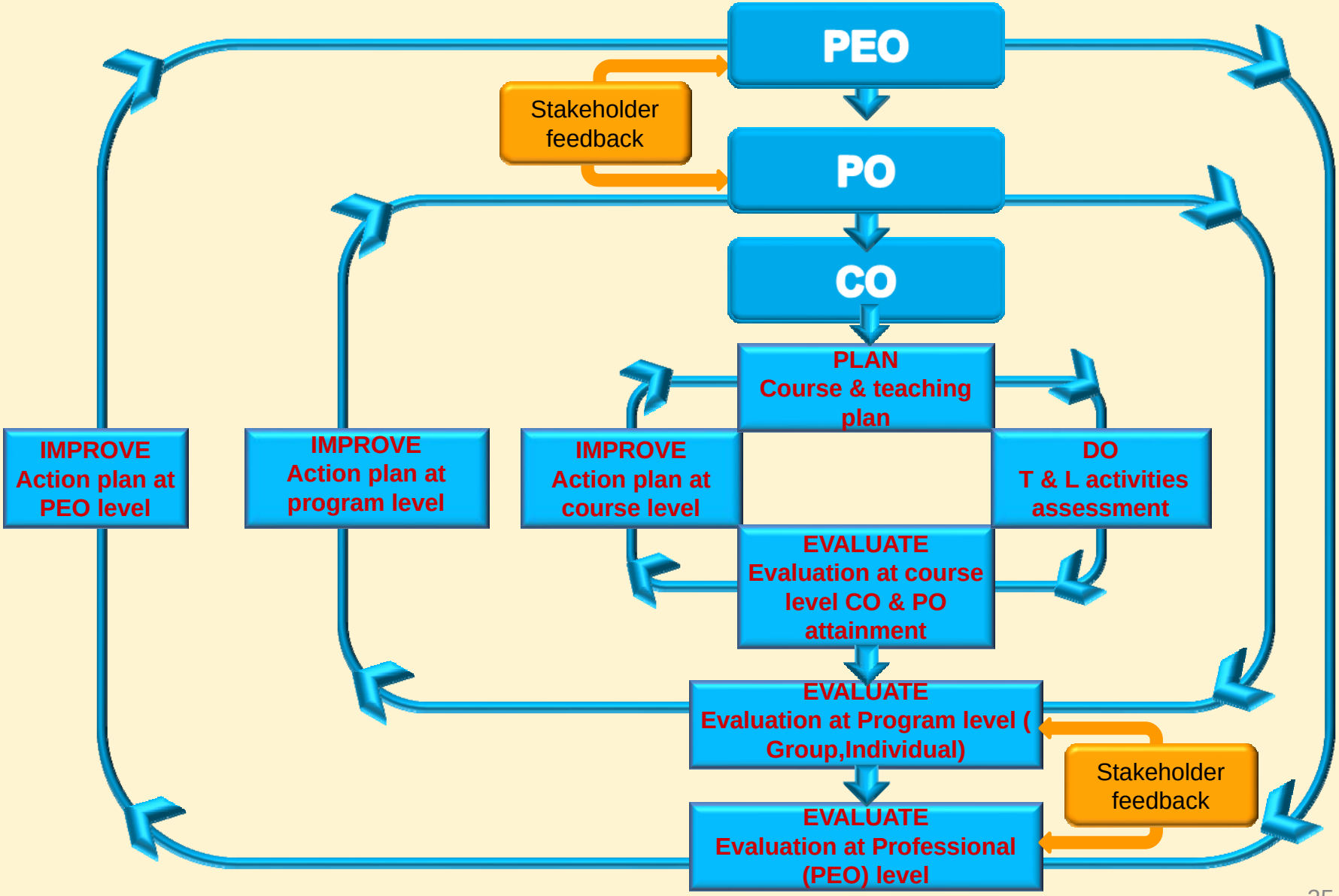
- **Step II – Benchmarking with the similar category Institutions: Understanding Vision and Mission**
- **Step III – Validation by the experts from academia and industry**
- **Step IV – Wide publicity in the Institution**
- **Step V – Review in closed loop every 5-7 years**

There should be a Committee at Institute-department level to ensure appropriate formulation, implementation and review of Vision and Mission statements and its development/review process

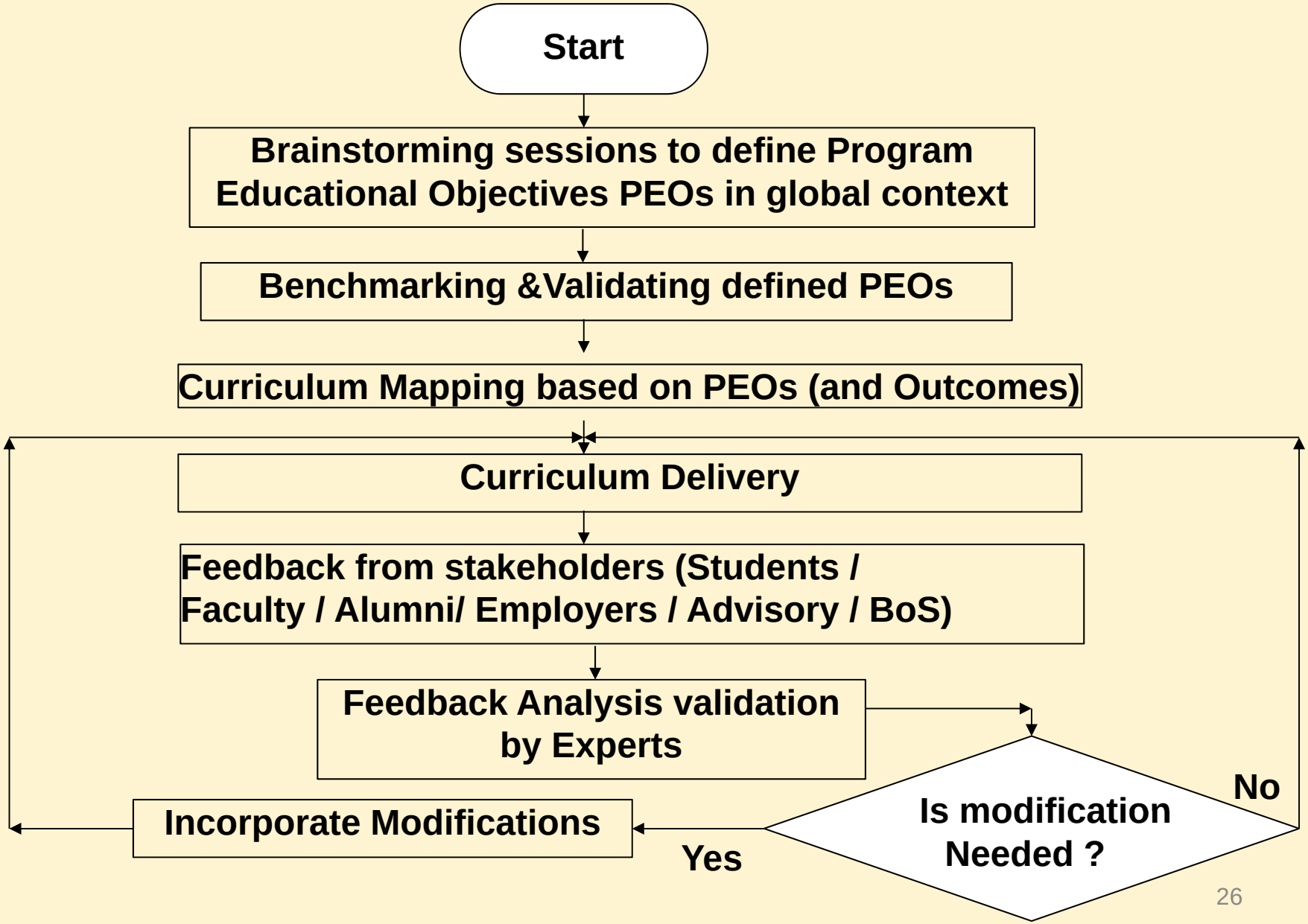
VMOs/PEOs/POs/COs



Process Cycles



PEOs Creation & Validation Process



1.5. Establish consistency of PEOs with Mission of the Department (15)

- Generate a “Mission of the Department – PEOs matrix” with justification and rationale of the mapping

PEO Statements	M1	M2	….	Mn
PEO1:				
PEO2:				
PEO3:				
PEO4:				
PEO5:				

Note: M1, M2, . . Mn are distinct elements of Mission statement. Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put “-”

Matrix Preparation (5) + Consistency/Justification (10)

PEOs and Mission Statement mapping - justification:	
Mapping	**Justification**
PEO1 with M1 and Mn	
PEO2 with M2	
PEOn with M3 & M4	

To build domain knowledge based Professional human resources in Electronics discipline by Imparting core, fundamental knowledge, contemporary technical skills, social ethics in order to initiate Excellent industry institute collaboration for well being of society.

Mission statement	PEO-I	PEO-II	PEO-III	PEO-IV	PEO-V
To build domain knowledge based Professional human resources	√	√	√	√	√
Imparting core, fundamental knowledge, contemporary technical skills, social ethics		√	√	√	
Initiate Excellent industry institute collaboration for well being of society		√	√	√	√

CRITERION 2	Program Curriculum and Teaching – Learning Processes	120

2.1. Program Curriculum (20)

2.1.1. **State the process used to identify extent of compliance of the University curriculum for attaining the Program Outcomes and Program Specific Outcomes as mentioned in Annexure I. Also mention the identified curricular gaps, if any (10)**

- State the process details
- Mention identified curricular gaps
- Extent of compliance

Effective Process implementation (6) + Curricular Gaps (4)

Note: If no gaps then marks of 2.1.2 will be merged with 2.1.1.

2.1.2. **State the delivery details of the content beyond the syllabus for the attainment of POs & PSOs (10)**

- Details of the additional course/learning material/content/laboratory experiments/projects etc. to cover the gaps

Institute to provide inputs to the Affiliating University regarding curricular gaps and possible addition of new content/add-on courses in the curriculum to better attain program outcome(s)

Intimation to the University (2) + Delivery details (5) + Mapping (3)

CAY, CAYm1, CAYm2

S.No.	Gap	Action taken	Date-Month-Year	Resource Person with designation	No. of students present	Relevance to POs, PSOs

- Documentary evidence
- Availability & Appropriateness of Mapping

2.2. Teaching-Learning Processes (100)

2.2.1. Describe Processes followed to improve quality of Teaching & Learning (25)

Processes may include adherence to academic calendar and implementation of pedagogical initiatives such as –

- Real life examples
- Collaborative learning
- Quality of laboratory experience with regard to conducting experiments
- Recording observations
- Analysis of data etc
- Encouraging bright students
- Assisting weak students etc
- ICT supported learning
- Interactive classrooms

Academic Calendar (3) + Pedagogical initiatives (3) + Weak and Bright students (4) + Classroom teaching (3) + Experiment (3) + Continuous Assessment in Lab (3) + Student feedback of T-L and action taken thereof (6)

Documentary evidence

2.2.2. Quality of internal semester Question papers, Assignments and Evaluation (20)

Mention the initiatives, Implementation details and analysis of learning levels related to **–**

- **Quality of Semester Question papers**
- **Assignments**
- **Evaluation**
- **Relevance to COs**

Process to ensure quality (5)

Process to ensure quality of question paper from outcomes/learning perspective (5)

Evidence of COs coverage (5)

Quality of assignments and relevance to COs (5)

2.2.3. Quality of student projects (25)

• Consideration to factors including, but not limited to –

- Environment
- Safety
- Ethics
- Cost
- Type (application, product, research, review etc.)
- Standards
- Processes related to project identification, allotment, continuous monitoring, evaluation
- Demonstration of working prototype sand enhancing the relevance of projects.
- Mention Implementation details including details of Pos and PSOs addressed with justification

Identification of projects and allocation methodology (3)

Types and relevance of the projects and their contribution towards attainment of POs(5)

Process for monitoring and evaluation (5)

Process to assess individual and team performance (5)

Quality of completed projects/working prototype(5)

Evidences of papers published /Awards received by projects etc. (2)

2.2.4. Initiatives related to industry interaction (15)

- Industry supported laboratories (5)
- Industry involvement in the program design and partial delivery of any regular courses for students (5)
- Impact analysis of industry institute interaction and actions taken thereof (5)

- **Type of Industries, type of labs, objectives, utilization and effectiveness**
- **Impact analysis**
- **Documentary evidence**

2.2.5. Initiatives related to industry internship/summer training (15)

- Industrial training/tours for students (3)
- Industrial /internship /summer training of more than two weeks and post training Assessment (4)
- Impact analysis of industrial training (4)
- Student feedback on initiatives (4)

- Type of Industries, planned or non-planned activity
- Objectives clearly defined
- No. of students participated
- Relevant area of training
- Visit report documented
- Documentary evidence
- Effectiveness including relevant area of the training
- Impact analysis and feedback format, analysis and actions taken (Will also be verified during interaction with students)

CRITERION 3	Course Outcomes and Program Outcomes	120

3.1. Establish the correlation between the Courses and the Program Outcomes (POs) and Program Specific Outcomes (PSOs) (20)

3.1.1. Course Outcomes (COs)

SAR should include course outcomes of One course/Semester (3rd to 8th) of study, however, should be prepared for all courses and made available as evidence, if asked) (05)

Number of Outcomes for a Course is expected to be around 6.

Course Name: Ciii Year of Study: YYYY – YY; for ex. C202 Year of study 2013-14

C202.1	<Statement>
C202.2	<Statement>
C202.3	<Statement>
C202.N	<Statement>

Evidence of COs being defined for every course (5)

Appropriateness of the statements

Course Outcomes - Digital Logic Circuit Design

Student will be able to:

1) Apply knowledge of number systems, codes and Boolean algebra to the analysis and design of digital logic circuits

2) Identify, formulate, and solve engineering problems in the area of digital logic circuit design

3) Use the techniques, skills, and modern engineering tools such as logic works and VHDL, necessary for engineering practice

4) Function on multi-disciplinary teams through digital circuit experiments and projects

5) Design a digital system, components or process to meet desired needs within realistic constraints

Course Outcomes - Communication subject

Student will be able to:

1. **Convert between time and frequency domain representations of signal**
2. **Compute the energy in an energy signal in the time or frequency domain**
3. **Compute a modulated analogue signal from an analogue message signal (modulation)**
4. **Compute an analogue message signal from an analogue modulated signal (demodulation)**
5. **Compute the autocorrelation function of a random process**

3.1.2. CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 3rd to 8th semester) (05)

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C202.1												
C202.2												
C202.3												
C202.N												
C202												

Note:
Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put "-"

Similar table is to be prepared for PSOs

Justification of the mapping

3.1.3. Program level Course-PO matrix of all courses INCLUDING first year courses (10)

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101												
C202												
C303												
....												
....												
C4...												

Note:

Enter correlation levels 1, 2 or 3 as defined below:

1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

It there is no correlation, put "-"

∗It may be noted that contents of Table 3.1.2 must be consistent with information available in Table 3.1.3 for all the courses.

Similar table is to be prepared for PSOs

Justification of the mapping

3.2. Attainment of Course Outcomes (50)

3.2.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcome is based (10)

- *Examples of data collection processes may include, but are not limited to –*

  - *Specific exam/tutorial questions*
  - *Assignments*
  - *Laboratory tests*
  - *Project evaluation*
  - *Student portfolios*

- *A portfolio is a collection of artifacts that demonstrate skills, personal characteristics, and accomplishments created by the student during study period, internally developed assessment exams, project presentations, oral exams etc.*

List of Assessment process (2)

Quality and relevance of processes and tools (8)

3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels (40)

- Program shall have set Course Outcome attainment levels for all courses
- The attainment levels shall be set considering average performance levels in the University Examination or any higher value set as target for the assessment years
- Attainment level
  - Student performance in internal assessments with respect the Course Outcomes
  - Performance in the University Examination

Methodology to define attainment levels and its compliance, data collection, verification, analysis and decision making

Measuring Course Outcomes attained through University Examinations

*Note: For cases where the **University does not provide** useful indicators like average or median marks etc., the program may choose an attainment level on its own with justification*

Example related to attainment levels Vs. targets:
(The examples indicated are for reference only. Program may appropriately define levels)

Attainment Level 1: ***60%*** *students scoring more than University average percentage marks or set attainment level in the final examination*

Attainment Level 2: ***70%*** *students scoring more than University average percentage marks or set attainment level in the final examination*

Attainment Level 3: ***80%*** *students scoring more than University average percentage marks or set attainment level in the final examination*

- *Attainment is measured in terms of actual percentage of students getting set percentage of marks*
- *If targets are **achieved** then all the course outcomes are attained for that year Program is expected to set higher targets for the following years as a part of continuous improvement*
- *If targets are **not achieved** the program should put in place an action plan to attain the target in subsequent years*

Measuring CO attainment through Internal Assessments:
(The examples indicated are for reference only. Program may appropriately define levels)

Target may be stated in terms of percentage of students getting more than class average marks or set by the program in each of the associated COs in the assessment instruments (midterm tests, assignments, mini projects, reports and presentations etc. as mapped with the COs

Example

Mid-term test 1 addresses C202.1 and C202.2. Out of the maximum 20 marks for this test 12 marks are associated with C202.1 and 8 marks are associated with C202.2

Examples related to attainment levels Vs. targets:

Attainment Level 1: **60%** students scoring more than 60% marks out of the relevant maximum marks

Attainment Level 2: **70%** students scoring more than 60% marks out of the relevant maximum marks

Attainment Level 3: **80%** students scoring more than 60% marks out of the relevant maximum marks

- *Attainment is measured in terms of actual percentage of students getting set percentage of marks*
- *If targets are achieved then the C202.1 and C202.2 are attained for that year. Program is expected to set higher targets for the following years as a part of continuous improvement*
- *If targets are not achieved the program should put in place an action plan to attain the target in subsequent years*
- *Similar targets and achievement are to be stated for the other midterm tests/internal assessment instruments*

Course Outcome Attainment:

For example:

Attainment through University Examination: Substantial i.e. 3

Attainment through Internal Assessment: Moderate i.e. 2

Assuming 80% weightage to University examination and 20% weightage to Internal assessment, the attainment calculations will be (80% of University level) + (20% of Internal level) i.e. 80% of 3 + 20% of 2 = 2.4 + 0.4 = 2.8

Note: Weightage of 80% to University exams is only an example. Programs may decide weightages appropriately for University exams and internal assessment with due justification

50% - 50% Weightage = 1.5+1=2.5

Program may decide five attainment levels instead of three

For ex. - Attainment levels:

- Level 5 – Very High - Score from >2.5 to 3
- Level 4 – High - Score from >2 to 2.5
- Level 3 – Medium - Score from >1.5 to 2
- Level 2 – Low - Score from >1 to 1.5
- Level 1 – Very Low- Score from 0.5 to <1

3.3. Attainment of Program Outcomes and Program Specific Outcomes (50)

PROGRAM OUTCOMES (ANNEXURE 1)

1.Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2.Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3.Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4.Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5.Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6.The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes

Program specified 2 – 4 PSOs

Program Specific Outcomes - Programming

The student will –

- Participate in planning, implementing and evaluating language-specific team programming solutions to specific business problems

- Complete individual practical experiences in a variety of programming languages and situations

- Employ deductive logic skills to analyze malfunctioning computer programs and use proper debugging and testing skills, modifying them so that they function correctly

- Create computer program documentation through the use of: flow charts, IPO charts, pseudo code, internal program comments, and user instructions

- Demonstrate knowledge of, and the ability to write programs for, the World Wide Web

Program Specific Outcomes - Network Computer Management

The student will –

- Examine the elements supporting data communications and systems
- Show how the various IT components interact to support the Network Communications Management field
- Demonstrate an ability to use the conceptual and applied information to solve business related technological problems and issues
- Recognize and understand the dynamic nature of information technology

Program Specific Outcomes – System Administrator

The student will –

- Design and implement fundamental network security solutions; Configure WLAN products including access points, bridges, client devices and accessories
- Demonstrate proficiency in hardware and software installation and configuration
- Design and implement LAN and WAN infrastructures
- Manage server resources, monitor server performance, and safeguard data

3.3.1. Describe assessment tools and processes used for measuring the attainment of each of the Program Outcomes and Program Specific Outcomes (10)

- *Describe the assessment tools and processes used to gather the data upon which the evaluation of each of the Program Outcomes and Program Specific Outcomes is based indicating the frequency with which these processes are carried out*
- *Describe the assessment processes that demonstrate the degree to which the Program Outcomes and Program Specific Outcomes are attained and document the attainment levels*

List of Assessment tools and processes (5)
Quality/Relevance of assessment tools and processes (5)

•Direct and Indirect Assessment Tools & Processes

•Effective implementation

•Assessment methodology

•Indirect assessment formats/collection/analysis

•Decision making

3.3.2. Provide results of evaluation of each PO & PSO (40)

- *Program shall set Program Outcome attainment levels for all POs and PSOs*

- The attainment levels by direct (student performance) and indirect (surveys) are to be presented through Program level Course-PO & PSO matrix as indicated

PO Attainment: *Similar table is to be prepared for PSOs*

Results and level of attainment of each PO/PSO (24)

Overall levels of attainment (16)

- *Appropriate attainment levels*

- *Documentary evidences*

- *Attainment from Core courses*

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101												
C102												
…												
….												
….												
C409												
Direct Attainment												
Indirect Attainment												

- Direct attainment level of a PO & PSO is determined by taking average across all courses addressing that PO and/or PSO. Fractional numbers may be used for example 1.55
- Indirect attainment level of PO & PSO is determined based on the student exit surveys, employer surveys, co-curricular activities, extracurricular activities etc.

Example:

1. It is assumed that a particular PO has been mapped to four courses C2O1, C3O2, C3O3 and C4O1

2. PO attainment level will be based on attainment levels of direct assessment and indirect assessment

3. For affiliated, non-autonomous colleges, it is assumed that while deciding on overall attainment level 80% weightage may be given to direct assessment and 20% weightage to indirect assessment through surveys from students(largely), employers (to some extent). Program may have different weightages with appropriate justification

4. Assuming following actual attainment levels:

Direct Assessment

- C201 –High (3)
- C302 – Medium (2)
- C303 – Low (1)
- C401 – High (3)

Attainment level will be summation of levels divided by no. of courses
3+2+1+3/4= 9/4=2.25

Indirect Assessment

- Surveys, Analysis, customized to an average value as per levels 1, 2 & 3.
- Assumed level – 2

5. PO Attainment level will be **80%** of **Direct Assessment** + **20%** of **Indirect Assessment** i.e. 1.8 + 0.4 = 2.2, Moderate/Medium level of attainment

Note: Similarly for PSOs

- For each outcome there is a Rubric. Each Rubric may have between 2-4 performance criteria. For each performance criterion, there may be 4 performance levels.

Outcome (a): Ability to apply knowledge of math, science and engineering

Performance Criteria1: Ability to apply knowledge of mathematics

Performance Levels:

Level 1: Below expectations - Can not understand the mathematical principles involved in the course.

Level 2: Progressing to criterion - has difficulties applying the mathematical principles involved in the course.

Level 3: Meets criterion - can understand and apply mathematical principles taught in the course.

Level 4: Exceeds criterion - has insights beyond the standard mathematics principles taught in the course

Performance Criteria 2: Ability to apply scientific knowledge

Performance Levels:

Level 1: Below expectations- Can not understand the scientific principles involved in the course.
Level 2: Progressing to criterion - has difficulties applying the scientific principles involved in the course.
Level 3: Meets criterion - can understand and apply scientific principles taught in the course.
Level 4: Exceeds criterion - has insights beyond the standard scientific principles taught in the course

Performance Criteria 3: Ability to apply knowledge of engineering

Performance Levels:

Level 1: Below expectations - Does not attempt to optimize within constraint and/or efficiently.
Level 2: Progressing to criterion - is able to perform single parameter engineering optimization.
Level 3: Meets criterion - displays good practice of design and engineering optimization techniques within the given constraints.
Level 4: Exceeds criterion - adopts external engineering standards into the optimization problem.

Outcome (b): Ability to design, conduct experiments and analyze, interpret data

Performance Criteria 1: Effectively design solutions to instructor driven experimental problems

Level 1: Below expectations - is unable to produce experimental design that works
Level 2: Progressing to criterion - produces experimental design that only tests a portion of the design criteria.
Level 3: Meets criterion - is able to complete functional experimental design that fulfills specifications.
Level 4: Exceeds criterion - uses novel approaches to create experimental design solutions that go beyond standard approaches taught in the class.

Performance Criteria 2: Effectively conduct experiments to evaluate designs

Performance Criteria 3:Effectively analyzes experimental data Performance Levels:

Performance Criteria 4: Effectively interprets the analysis of experimental data Performance Levels:

www

For each course there is an outcome assessment worksheet with the following contents:

- No. of passing students.

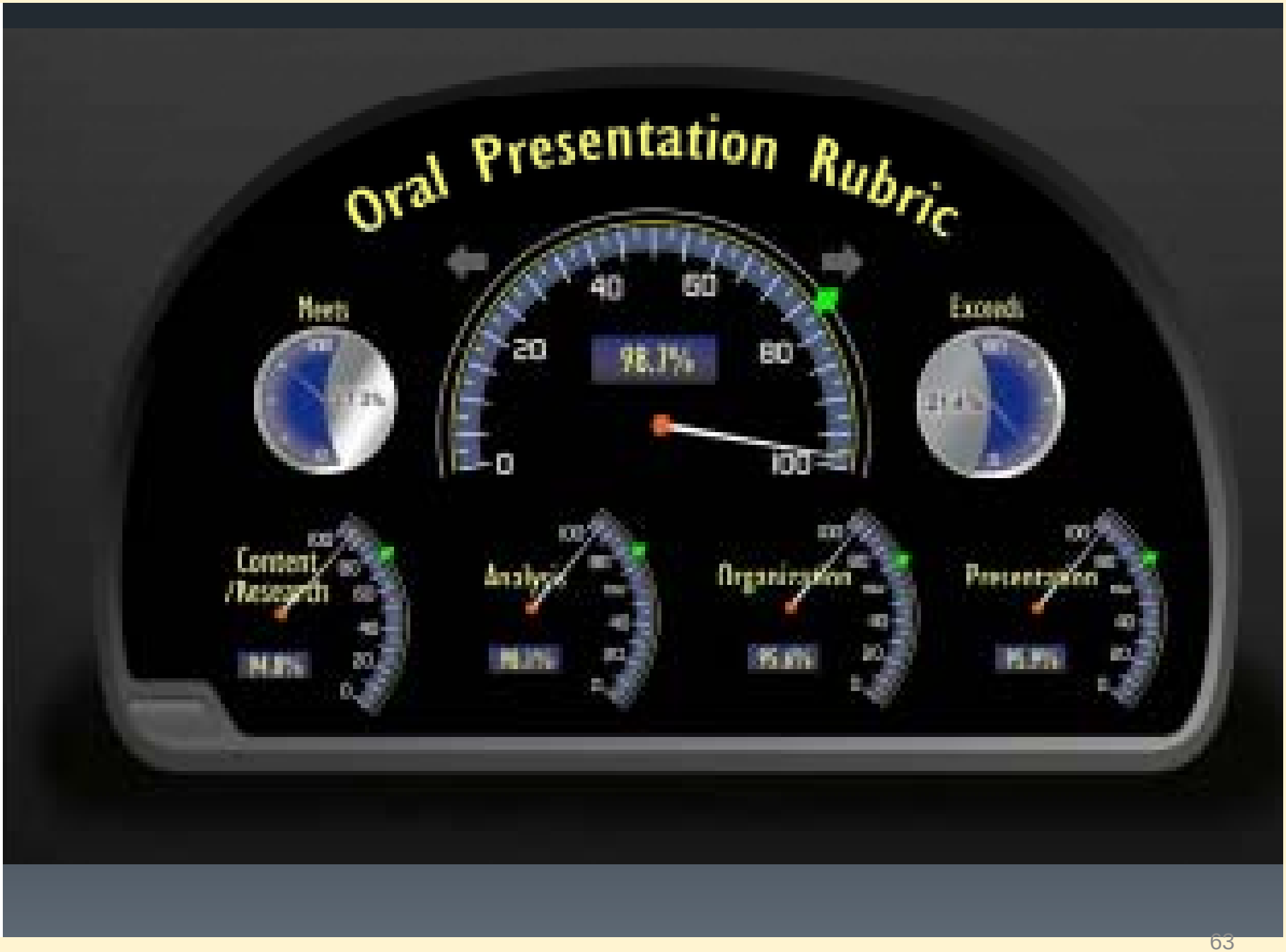
- Performance criteria and performance level matrix.

- Over all performance; no of students getting

  <2
  2- 2.49
  2.5-2.99
  3-3.49
  >=3.5

- Process used details such as questions, assignment for each of the criteria.

- Additional comments on process.

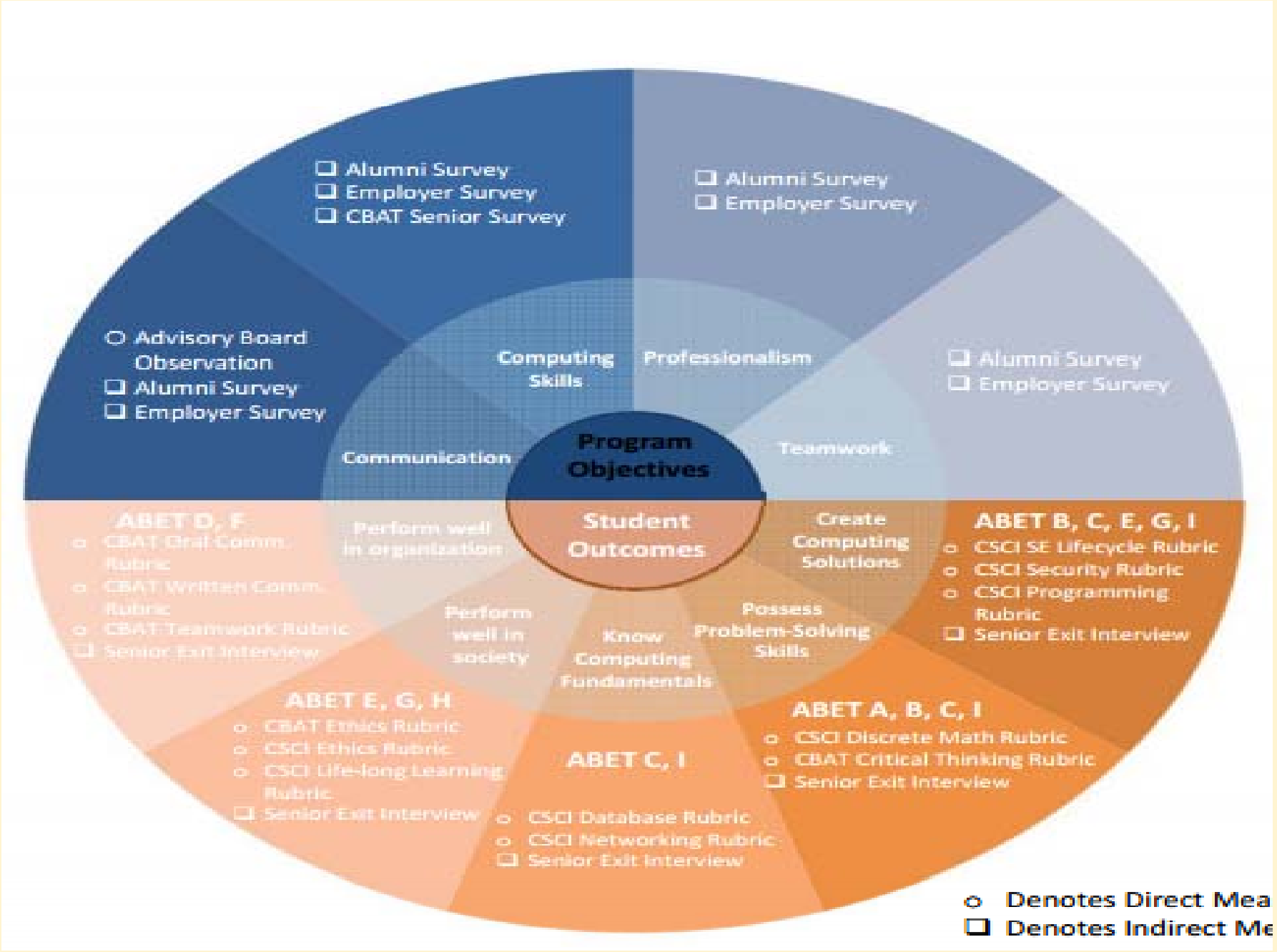

Oral Presentation Rubric
Meets
Exceeds
0
20
40
60
80
100
Content/Research
Analysis
Organization
Presentation

www

Oral Rubric - 10 Least Improved

2005-06 to 2008-09

	Does Not Meet Expectations			Meets Expectations			Exceeds Expectations			Meets & Exceeds Expectations		
	'05-06	'08-09		'05-06	'08-09		'05-06	'08-09		'05-06	'08-09	
Sources cited correctly with respect to accepted format in field.	0.0%	12.8%	↑	84.8%	71.9%	↓	15.2%	15.3%	↑	100.0%	87.2%	↓
Sources cited appropriately.	0.0%	11.1%	↑	86.4%	74.2%	↓	13.6%	14.7%	↑	100.0%	88.9%	↓
Summarizes key points/facts/data.	1.5%	8.9%	↑	85.3%	67.3%	↓	13.2%	23.8%	↑	98.5%	91.1%	↓
Stays within time-limit.	0.0%	8.6%	↑	86.8%	67.3%	↓	13.2%	24.1%	↑	100.0%	91.4%	↓
Provides overview/outline of presentation.	1.5%	8.1%	↑	65.7%	74.6%	↑	32.8%	17.2%	↓	98.5%	91.9%	↓
Free from distracting movement.	1.5%	6.9%	↑	85.3%	70.1%	↓	13.2%	23.0%	↑	98.5%	93.1%	↓
Have effective layout and composition (appropriate size and font size).	2.9%	6.2%	↑	67.6%	67.6%	↑	29.4%	26.1%	↓	97.0%	93.8%	↓
Relaxed and open.	1.5%	6.1%	↑	83.8%	68.5%	↓	14.7%	25.4%	↑	98.5%	93.9%	↓
Allocates time appropriately across topics.	0.0%	4.5%	↑	83.8%	71.1%	↓	16.2%	24.4%	↑	100.0%	95.5%	↓
Student use multiple and varied sources.	0.0%	4.4%	↑	85.3%	73.0%	↓	14.7%	22.6%	↑	100.0%	95.6%	↓


Alumni Survey
Employer Survey
CBAT Senior Survey
Alumni Survey
Employer Survey
Advisory Board Observation
Alumni Survey
Employer Survey
Alumni Survey
Employer Survey
Computing Skills
Professionalism
Communication
Program Objectives
Teamwork
Student Outcomes
ABET D, F
CBAT Oral Comm. Rubric
CBAT Written Comm. Rubric
CBAT Teamwork Rubric
Senior Exit Interview
Perform well in organization
Create Computing Solutions
ABET B, C, E, G, I
CSCI SE Lifecycle Rubric
CSCI Security Rubric
CSCI Programming Rubric
Senior Exit Interview
Perform well in society
Know Computing Fundamentals
Possess Problem-Solving Skills
ABET E, G, H
CBAT Ethics Rubric
CSCI Ethics Rubric
CSCI Life-long Learning Rubric
Senior Exit Interview
ABET C, I
CSCI Database Rubric
CSCI Networking Rubric
Senior Exit Interview
ABET A, B, C, I
CSCI Discrete Math Rubric
CBAT Critical Thinking Rubric
Senior Exit Interview
Denotes Direct Mea
Denotes Indirect Me

CRITERION 4	Students' Performance	150

Item *(Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)*	CAY	CAY m1	CAY m2
Sanctioned intake of the program (N)			
Total number of students admitted in first year *minus* number of students migrated to other programs/institutions plus no. of students migrated to this program (N1)			
Number of students admitted in 2nd year in the same batch via lateral entry (N2)			
Separate division students, if applicable (N3)			
Total number of students admitted in the Program (N1 + N2 + N3)			

Note: PIO/FN quota students, if admitted, details shall also be mentioned

Year of entry	N1 + N2 + N3 (As defined above)	Number of students who have successfully graduated without backlogs in any semester/year of study (Without Backlog means no compartment or failures in any semester/year of study)			
		I Year	II Year	III Year	IV Year
CAY					
CAYm1					
CAYm2					
CAYm3 (LYG)					
CAYm4 (LYGm1)					
CAYm5 (LYGm2)					

Similarly another table **With Backlog**

4.1. Enrolment Ratio (20)

Enrolment Ratio= N1/N

Item (Students enrolled at the First Year Level on average basis during the period of assessment)	Marks
>= 90% students	20
>= 80% students	18
>= 70% students	16
>= 60% students	14
Otherwise	0

4.2. Success Rate in the stipulated period of the program (40)

4.2.1. Success rate without backlogs in any semester/year of study (25)

SI = (Number of students who have graduated from the program without backlog)/ (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable)

Average SI = Mean of Success Index (SI) for past three batches
Success rate without backlogs in any year of study = 25 ⨯ Average SI

4.2.2. Success rate in stipulated period (15)

SI= (Number of students who graduated from the program in the stipulated period of course duration)/ (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry and separate division, if applicable)

Average SI = mean of Success Index (SI) for past three batches

Success rate = 15 ⨯ Average SI

Note: If 100% students clear without any backlog then also total marks scored will be 40 as both 4.2.1 & 4.2.2 will be applicable simultaneously

4.3. Academic Performance in Third Year (15)

*Academic Performance = 1.5 * Average API (Academic Performance Index)*

***API** = ((Mean of 3rd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Third Year/10)) x (number of successful students/number of students appeared in the examination)*

Successful students are those who are permitted to proceed to the Final year

4.4. Academic Performance in Second Year (15)

*Academic Performance Level = 1.5 * Average API (Academic Performance Index)*

***API** = ((Mean of 2nd Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks of all successful students in Second Year/10)) x (number of successful students/number of students appeared in the examination)*

Successful students are those who are permitted to proceed to the Third year

4.5. Placement, Higher Studies and Entrepreneurship (40)

Assessment Points = 40 × average placement

Item	CAY	CAYm1	CAYm2
Total No. of Final Year Students (N)			
No. of students placed in companies or Government Sector (x)			
No. of students admitted to higher studies with valid qualifying scores (GATE or equivalent State or National Level Tests, GRE, GMAT etc.) (y)			
No. of students turned entrepreneur in engineering/technology (z)			
x + y + z =			
Placement Index : (x + y + z)/N	P1	P2	P3
Average placement= (P1 + P2 + P3)/3			

4.6. Professional Activities (20)

4.6.1. Professional societies/chapters and organizing engineering events (5)

- Relevant details

Professional Society/Chapters (3)
No. and Quality of Engineering events organized at the Institute (2)

4.6.2. Publication of technical magazines, newsletters, etc. (5)

- The Department shall list the publications mentioned earlier along with the names of the editors, publishers, etc

Quality and relevance of the contents and print material (3)
Participation of students from the program (2)

4.6.3 Participation in inter-institute events by students of the program of study (10)

- The Department shall provide a table indicating those publications, which received awards in the events/conferences organized by other institutes

Within the State (2)
Outside the State (3)
Prized/Awards received (5)

CRITERION 5	Faculty Information and Contributions	200

Name of the Faculty Member	Qualification			Designation (all the designations since joining the institution)	Date of Joining the institution	Distribution of Teaching Load (%)				Academic Research			Sponsored Research (Funded Research)	Consultancy and Product Development	Specialization
						1st Year	UG		PG	Faculty Receiving Ph.D. during the Assessment Years	Ph.D. Guidance	Research Paper Publications			
	Degree (starting from highest degree)	University	Year of Graduation				In program	Other Program							

To provide cumulative information for all the shifts for three assessment years in above format in Annexure II

5.1. Student-Faculty Ratio (SFR) (20)

S:F ratio = N/F; **N=**No. of students= 3x where x is (approved intake + 20% lateral entry intake + separate division, if any)

F = No. of faculty = (a + b – c) for every assessment year

a: Total number of full-time regular Faculty serving fully to 2nd, 3rd and 4th year of the this program

b: Total number of full-time equivalent regular Faculty(considering fractional load) serving this program from other Program(s)

c: Total number of full time equivalent regular Faculty(considering fractional load) of this program serving other program(s)

Marks to be given proportionally from a maximum of 20 to a minimum of 10 for average SFR between 15:1 to 20:1, and zero for average SFR higher than 20:1

5.2. Faculty Cadre Proportion (25)

The reference Faculty cadre proportion is 1(F1):2(F2):6(F3)

$$\text{Cadre Proportion Marks} = \left\{ \left[\frac{AF1}{RF1} \right] + \left[\frac{AF2}{RF2} \times 0.6 \right] + \left[\frac{AF3}{RF3} \times 0.4 \right] \right\} \times 12.5$$

- If AF1 = AF2= 0 then zero marks

- Maximum marks to be limited if it exceeds 25

Example: Intake = 180; Required number of Faculty: 12; RF1= 1, RF2=2 and RF3=9

Case 1: AF1/RF1= 1; AF2/RF2 = 1; AF3/RF3 = 1;

Cadre proportion marks = (1+0.6+0.4) x12.5 = 25

Case 2: AF1/RF1= 1; AF2/RF2 = 3/2; AF3/RF3 = 8/9;

Cadre proportion marks = (1+0.9+0.3) x12.5 = limited to 25

Case 3: AF1/RF1=0; AF2/RF2=1/2; AF3/RF3=11/9;

Cadre proportion marks = (0+0.3+0.49) x12.5 = 9.87

5.3. Faculty Qualification (25)

FQ =2.5 x [(10X +6Y)/F)] where x is no. of regular faculty with Ph.D., Y is no. of regular faculty with M.Tech., F is no. of regular faculty required to comply 1:15 Faculty Student ratio (no. of faculty and no. of students required are to be calculated as per 5.1)

5.4. Faculty Retention (25)

No. of regular faculty members in CAYm2= CAYm1= CAY=

Item (During the period of assessment keeping CAYm2 as base year)	Marks
>=90% of required Faculty members retained	25
>=75% of required Faculty members retained	20
>=60% of required Faculty members retained	15
>=50% of required Faculty members retained	10
<50% of required Faculty members retained	0

5.5. Innovations by the Faculty in Teaching and Learning (20)

Innovations by the Faculty in teaching and learning shall be summarized as per the following description:

Contributions to teaching and learning are activities that contribute to the improvement of student learning. These activities may include innovations not limited to-

- *Use of ICT*
- *Instruction delivery*
- *Instructional methods*
- *Assessment*
- *Evaluation and inclusive class rooms that lead to effective, efficient and engaging instruction*

Any contributions to teaching and learning should satisfy the following criteria:

- ***The work must be made available on Institute website (4)***
- ***The work must be available for peer review and critique (4)***
- ***The work must be reproducible and developed further by other scholars (2)***
- ***Statement of clear goals, use of appropriate methods, significance of results, effective presentation (10)***

The department/institution may set up appropriate processes for making the contributions available to the public, getting them reviewed and for rewarding

5.6. Faculty as participants in Faculty development/training activities/STTPs (15)

- A Faculty scores maximum five points for participation
- Participation in 2 to 5 days Faculty development program: 3 Points
- Participation >5 days Faculty development program: 5 points

Name of the Faculty	Max. 5 per Faculty		
	CAY	CAYm1	CAYm2
Sum			
RF= Number of Faculty required to comply with 15:1 Student-Faculty ratio as per 5.1			
Assessment = 3 × (Sum / 0.5RF) (Marks limited to 15)			
Average assessment over three years (Marks limited to 15) =			

5.7. Research and Development (30)

5.7.1. Academic Research (10)

Academic research includes research paper publications, Ph.D. guidance, and faculty receiving Ph.D. during the assessment period.

- **Number of quality publications in refereed/SCI Journals, citations, Books/Book Chapters etc. (6)**
- **Ph.D. guided /Ph.D. awarded during the assessment period while working in the institute (4)**

5.7.2. Sponsored Research (5)

- Funded research from outside
- Provide a list with Project Title, Funding Agency, Amount and Duration

Funded research from outside; Cumulative during Assessment years:

- Amount >20 Lacs – 5 Marks
- Amount >=16Lacs and < =20 Lacs – 4 Marks
- Amount >=12 Lacs and < 16 Lacs – 3 Marks
- Amount >=8 Lacs and < 12 Lacs – 2 Marks
- Amount >=4 Lacs and < 8 Lacs – 1 Mark
- Amount < 4 Lacs – 0 Mark

5.7.3. Development activities (10)

Provide details:

- Product Development
- Research laboratories
- Instructional materials
- Working models/charts etc.

5.7.4. Consultancy (from Industry) (5)

- Provide a list with Project Title, Funding Agency, Amount and Duration

Funded research from outside; Cumulative during Assessment years:

- Amount >10 Lacs – 5 Marks
- Amount >=8Lacs and <=10 Lacs – 4 Marks
- Amount >=6 Lacs and < 8 Lacs – 3 Marks
- Amount >=4 Lacs and < 6 Lacs – 2 Marks
- Amount > =2 Lacs and < 4 Lacs – 1 Mark
- Amount < 2 Lacs – 0 Mark

5.8. Faculty Performance Appraisal and Development System (FPADS) (30)

- An effective performance appraisal system for Faculty is vital for optimizing the contribution of individual Faculty to institutional performance

The assessment is based on:

- **A well-defined system for faculty appraisal for all the assessment years (10)**
- **Its implementation and effectiveness (20)**

5.9. Visiting/Adjunct/Emeritus Faculty etc. (10)

Adjunct faculty also includes Industry experts. Provide details of participation and contributions in teaching and learning and /or research by visiting/adjunct/Emeritus faculty etc. for all the assessment years:

- **Provision of inviting visiting/adjunct /Emeritus faculty (1)**
- **Minimum 50 hours per year interaction with adjunct faculty from industry/retired professors etc.**

Minimum 50 hours interaction in a year will result in 3 marks for that year; 3 marks x 3 years = 9 marks

CRITERION 6	Facilities and Technical Support	80

6.1. Adequate and well equipped laboratories, and technical manpower (30)

SN	Name of the Laboratory	No. of students per setup(Batch Size)	Name of the Important equipment	Weekly utilization status (all the courses for which the lab is utilized)	Technical Manpower support		
					Name of the technical staff	Designation	Qualification
1.							
N.							

6.2. Additional facilities created for improving the quality of learning experience in laboratories (25)

Sr. No.	Facility Name	Details	Reason(s) for creating facility	Utilization	Areas in which students' are expected to have enhanced learning	Relevance to POs/PSOs
1.						
N.						

6.3. Laboratories: Maintenance and overall ambiance (10)

Self-Explanatory

6.4. Project laboratory (5)

Mention facility & Utilization

6.5. Safety measures in laboratories (10)

Sr. No.	Name of the Laboratory	Safety measures
1.		
N.		

CRITERION 7	Continuous Improvement	50

7.1. Actions taken based on the results of evaluation of each of the POs & PSOs (20)

- Identify the areas of weaknesses in the program based on the analysis of evaluation of POs & PSOs attainment levels
- Measures identified and implemented to improve POs & PSOs attainment levels for the assessment years

Examples of analysis and proposed action

Sample 1:

- Course outcomes for a laboratory course did not measure up, as some of the lab equipment did not have the capability to do the needful (e.g., single trace oscilloscopes available where dual trace would have been better, or, non-availability of some important support software etc.)

- Action taken-Equipment up-gradation was carried out (with details of up-gradation)

Sample 2:

- In a course on EM theory student performance has been consistently low with respect to some COs
- Analysis of answer scripts and discussions with the students revealed that this could be attributed to a weaker course on vector calculus
- Action taken-revision of the course syllabus was carried out (instructor/text book changed too has been changed, when deemed appropriate)

Sample 3:

- In a course that had group projects it was determined that the expectations from this course about PO3 (like: “to meet the specifications with consideration for the public health and safety, and the cultural, societal, and environmental considerations”) were not realized as there were no discussions about these aspects while planning and execution of the project
- Action taken- Project planning, monitoring and evaluation included in rubrics related to these aspects

POs & PSOs Attainment Levels and Actions for improvement – CAY

	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			
Action 1: **Action n:**			
PO2: Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences			

Similar Tables should be presented for all POs & PSOs

7.2. Academic Audit and actions taken thereof during the period of Assessment (10)

- **Assessment shall be based on conduct and actions taken in relation to Continuous Improvement (10)**

Assessment criteria, frequency, conduct mechanism, action plan, implementation and effectiveness

7.3. Improvement in Placement, Higher Studies and Entrepreneurship (10)

Assessment is based on improvement in:

- **Placement: number, quality placement, core industry, pay packages etc. (5)**
- **Higher studies: performance in GATE, GRE, GMAT, CAT etc., and admissions in premier institutions (3)**
- **Entrepreneurs (2)**

7.4. Improvement in the quality of students admitted to the program (10)

Assessment is based on improvement in terms of ranks/score in qualifying –

- State level/National level entrances tests
- Percentage marks in Physics, Chemistry and Mathematics in 12th Standard
- Percentage marks of the lateral entry students

CRITERION 8	First Year Academics	50

8.1. First Year Student-Faculty Ratio (FYSFR) (5)

Assessment = (5 × 15)/Average FYSFR (Limited to Max. 5)

8.2. Qualification of Faculty Teaching First Year Common Courses (5)

Assessment of qualification = (5*x* +3*y*)/*RF*
x= Number of Regular Faculty with Ph.D
y = Number of Regular Faculty with Post-graduate qualification
RF= Number of faculty members required as per SFR of 15:1

8.3. First Year Academic Performance (10)

Academic Performance = ((Mean of 1st Year Grade Point Average of all successful Students on a 10 point scale) or (Mean of the percentage of marks in First Year of all successful students/10)) x *(number of successful students/number of students appeared in the examination)*

Successful students are those who are permitted to proceed to the Second year

8.4. Attainment of Course Outcomes of first year courses (10)

8.4.1. Describe the assessment processes used to gather the data upon which the evaluation of Course Outcomes of first year is done (5)

Examples of data collection processes may include, but are not limited to –

- *Specific exam questions*
- *Laboratory tests*
- *Internally developed assessment exams*
- *Oral exams*
- *Assignments*
- *Presentations*
- *Tutorial sheets etc.*

8.4.2. Record the attainment of Course Outcomes of all first year courses (5)

Program shall have set attainment levels for all first year courses.

- *The attainment levels shall be set considering average performance levels in the University Examination or any higher value set as target for the assessment years.*
- *Attainment level is to be measured in terms of student performance in internal assessments with respect the COs of a subject plus the performance in the University examination*

8.5. Attainment of Program Outcomes of all first year courses (20)

8.5.1. Indicate results of evaluation of each relevant PO and/or PSO, if applicable (15)

- *The relevant program outcomes that are to be addressed at first year need to be identified by the institution*
- *Program Outcome attainment levels shall be set for all relevant POs* and/or PSOs *through first year courses*

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C101												
C102												
…												
….												
…												
Direct Attainment												

8.5.2. Actions taken based on the results of evaluation of relevant POs (5)

The attainment levels by direct (student performance) are to be presented through Program level Course-PO matrix as indicated

PO Attainment Levels and Actions for improvement CAY

	Target Level	Attainment Level	Observations
PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.			

	Target Level	Attainment Level	Observations
Action 1: Action n:			
PO2: Problem analysis: Identify, formulate, research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences			
Action 1: Action n:			

Note: PSOs, if applicable to be added appropriately

CRITERION 9	Student Support Systems	50

9.1. Mentoring system to help at individual level (5)

- Type of mentoring: Professional guidance / career advancement / course work specific / laboratory specific / all-round development
- Number of faculty mentors
- Number of students per mentor
- Frequency of meeting
- Effectiveness

9.2. Feedback analysis and reward /corrective measures taken, if any (10)

- Feedback collected for all courses: YES/NO
- Feedback questionnaire
- Specify the feedback collection process
- Average Percentage of students who participated
- Specify the feedback analysis process
- Basis of reward / corrective measures, if any: Indices used for measuring quality of teaching and learning
- Summary of the index values for all courses/teachers
- Number of corrective actions taken

9.3. Feedback on facilities (5)

Assessment is based on -

- Feedback collection
- Analysis and corrective action taken

9.4. Self Learning (5)

The institution needs to specify –

- *Facilities*
- *Materials*
- *Scope for self-learning / learning beyond syllabus*
- *Webinars*
- *Podcast*
- *MOOCs*
- *Evaluate effectiveness*

- ***Scope for self learning (2)***
- ***Facilities and its effective utilization (3)***

9.5. Career Guidance, Training, Placement (10)

The institution may specify –

- *Facility*
- *Management*
- *Effectiveness for career guidance including counseling for higher studies*
- *Campus placement support*
- *Industry interaction for training/internship/placement, etc.*

Facility (2), Counseling for higher studies (2), Pre-placement training (3), Placement process and support (3)

9.6. Entrepreneurship Cell (5)

The institution may specify –

- *Facility*
- *Management*
- *Effectiveness in encouraging entrepreneurship and incubation*
- *Success stories for each of the assessment years*

Entrepreneurship initiative (1), Students benefit (4)

9.7. Co-curricular and Extra-curricular Activities (10)

The institution may specify –

- *Co-curricular and extra-curricular activities*

CRITERION 10	Governance, Institutional Support and Financial Resources	120

10.1. Organization, Governance and Transparency (40)

10.1.1. State the Vision and Mission of the Institute (5)

Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations

Availability (2)
Appropriateness/relevance (3)

- *Availability of statement on Institute website*
- *Availability at Central facilities such as Library, Computer Centers, Principal Chambers etc.*
- *Availability of one set of statements in each of the departments*
- *Availability in Institute level documents*

10.1.2. Governing body, administrative setup, functions of various bodies, service rules, procedures, recruitment and promotional policies (10)

- List the Governing Body Composition and all other academic and administrative bodies; their memberships, functions, and responsibilities; frequency of the meetings and attendance therein (4)
- The published rules including service rules, policies and procedures; year of publication shall be listed (3)
- Minutes of the meetings, Action taken reports, extent of awareness among the employees/students (3)

10.1.3. Decentralization in working and grievance redressal mechanism (10)

- List the names of the faculty members who have been delegated powers for taking administrative decisions (1)
- Grievance Redressal cell (2)
- Action taken report (7)

10.1.4. Delegation of financial powers (10)

- Institution should explicitly mention financial powers delegated to the Principal, Heads of Departments and relevant in-charges (3)
- Demonstrate the utilization of financial powers for each year of the assessment years (7)

10.1.5. Transparency and availability of correct/unambiguous information in public domain (5)

- Information on policies, rules, processes and dissemination of this information to stakeholders is to be made available on the web site (2)
- Disseminating of information about student, faculty and staff (3)

10.2. Budget Allocation, Utilization, and Public Accounting at Institute level (30)

Summary of current financial year's budget and actual expenditure incurred (for the institution exclusively) in the three previous financial years.

Total Income at Institute level: For CFY, CFYm1, CFYm2 & CFYm3

For CFY: Similar tables are to be prepared for CFYm1, CFYm2 & CFYm3

Total Income:				Actual expenditure (till …):			Total No. of students:
Fee	Govt.	Grant(s)	Other Sources (specify)	Recurring including Salaries	Non-recurring	Special Projects / Any other, specify	Expenditure per student

Items	Budgeted in CFY	Actual expenses in CFY (till ...)	Budgeted in CFY*m*1	Actual Expenses in CFY*m*1	Budgeted in CFY*m*2	Actual Expenses in CFY*m*2	Budgeted in CFY*m*3	Actual Expenses in CFY*m*3
Infrastructure Built-Up								
Library								
Laboratory equipment								
Laboratory consumables								
Teaching and non-teaching staff salary								
Maintenance and spares								
R&D								
Training and Travel								
Miscellaneous expenses *								
Others, specify								
Total								

*** Items to be mentioned**

10.2.1. Adequacy of budget allocation (10)

- The institution needs to justify that the budget allocated over the years was adequate

Adequacy of Budget allocation (5), Justification (5)

10.2.2. Utilization of allocated funds (15)

- The institution needs to state how the budget was utilized during assessment years

10.2.3. Availability of the audited statements on the institute's website (5)

- The institution needs to make audited statements available on its website

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10.3. Program Specific Budget Allocation, Utilization (30)

Total Budget at program level: For CFY, CFYm1, CFYm2 & CFYm3

For CFY: Similar tables are to be prepared for CFYm1, CFYm2 & CFYm3

Total Budget:		Actual expenditure (till …):		Total No. of students:
Non recurring	Recurring	Non Recurring	Recurring	Expenditure per student

Items	Budgeted in CFY	Actual expenses in CFY (till …)	Budgeted in CFY*m*1	Actual Expenses in CFY*m*1	Budgeted in CFY*m*2	Actual Expenses in CFY*m*2	Budgeted in CFY*m*3	Actual Expenses in CFY*m*3
Laboratory equipment								
Software								
Laboratory consumable								

Items	Budgeted in CFY	Actual expenses in CFY (till ...)	Budgeted in CFY*m*1	Actual Expenses in CFY*m*1	Budgeted in CFY*m*2	Actual Expenses in CFY*m*2	Budgeted in CFY*m*3	Actual Expenses in CFY*m*3
R & D								
Training and Travel								
Miscellaneous expenses *								
Total								

*** Items to be mentioned**

10.3.1. Adequacy of budget allocation (10)

Program needs to justify that the budget allocated over the assessment years was adequate for the program

Adequacy of Budget allocation (5), Justification (5)

10.3.2. Utilization of allocated funds (20)

Program needs to state how the budget was utilized during the last three assessment years

10.4. *Library and Internet* (20)

- **AICTE zero deficiency report** for all the assessment years
- Effective availability
- Purchase records
- Utilization of facilities/equipment
- Documentation

10.4.1. Quality of learning resources (hard/soft) (10)

- Relevance of available learning resources including e-resources (7)
- Accessibility to students (3)

10.4.2. Internet (10)

- Name of the Internet provider
- Available bandwidth (4)
- Wi Fi availability (2)
- Internet access in labs, classrooms, library and offices of all Departments (2)
- Security arrangements (2)

Thanks