SELF ASSESSMENT REPORT (SAR)

Diploma Engineering Programs

First Time Accreditation

(From 1st Oct, 2015)

(For all the programs except those granted full accreditation for 5 yrs. as per Jan, 2013 manual)

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,
- Presents crisp program status to the evaluation team and addresses process and the extent to which, a program meets each criterion,
- Provides the first impression about the I/P to the evaluation team,
- 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**
	Program Level Criteria
1	Vision, Mission and Program Educational Objectives
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	Student Support Systems
9	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 Directorate of Technical Education:
3. Year of Establishment:
4. Type of the Institution:

University ☐

Deemed University ☐

Autonomous ☐

Affiliated ☐

Any other (Please specify) :

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:

PART A: Institutional Information

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

Name of the Institution	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 Commencement	Intake Capacity	Increase in intake, if any	Year of increase	AICTE Approval	Accreditation Status*

* Note: Add rows as needed

PART A: Institutional Information

Write appropriate option from the list:

- 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.	

PART A: Institutional Information

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 & Technology	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 not less than two years AND drawing consolidated salary equal or more 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

PART A: Institutional Information

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

Note : *In case Institution is running AICTE approved courses in Second Shift, separate tables with the relevant heading shall be prepared.*

B. Contractual Staff Employees (Faculty and Staff): (Not covered in Table 9.A):

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

PART A: Institutional Information

10. Total number of Students:

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

Note: *In case the Institution is running AICTE approved courses in Second Shift, separate tables with the relevant heading shall be prepared.*

11. Contact Information of the Head of the Institution and NBA coordinator :

1. Name:

   Designation:

   Mobile No: Email id:

2. NBA coordinator, if designated:

   Name:

   Designation:

   Mobile No: Email id:

PART B - CRITERIA SUMMARY

Name of the program: _____

Criterion No.	Criterion	Marks / Weightage
Program Level Criteria		
1	Vision, Mission and Program Educational Objectives	50
2	Program Curriculum and Teaching – Learning Processes	200
3	Course Outcomes and Program Outcomes	100
4	Students' Performance	200
5	Faculty Information and Contributions	150
6	Facilities and Technical Support	100
7	Continuous Improvement	75
	Institute Level Criteria	
8	Student Support Systems	50
9	Governance, Institutional Support and Financial Resources	75
Total		**1000**

Self Assessment Report (SAR)

CRITERION 1	Vision, Mission and Program Educational Objectives	50

1.1. State the Vision and Mission of the Department and Institution (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 / Relevance of the statements (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 & Appropriateness

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 and how 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 (15)

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

Vision and Mission process (7) + PEOs process (8)

Process to ensure:

- Effective participation of Stakeholders
- Effective Process implementation
- *Documentary evidence*

.

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

- Step I - Brainstorming:

  1st level - Promoters, Administrators, Faculty

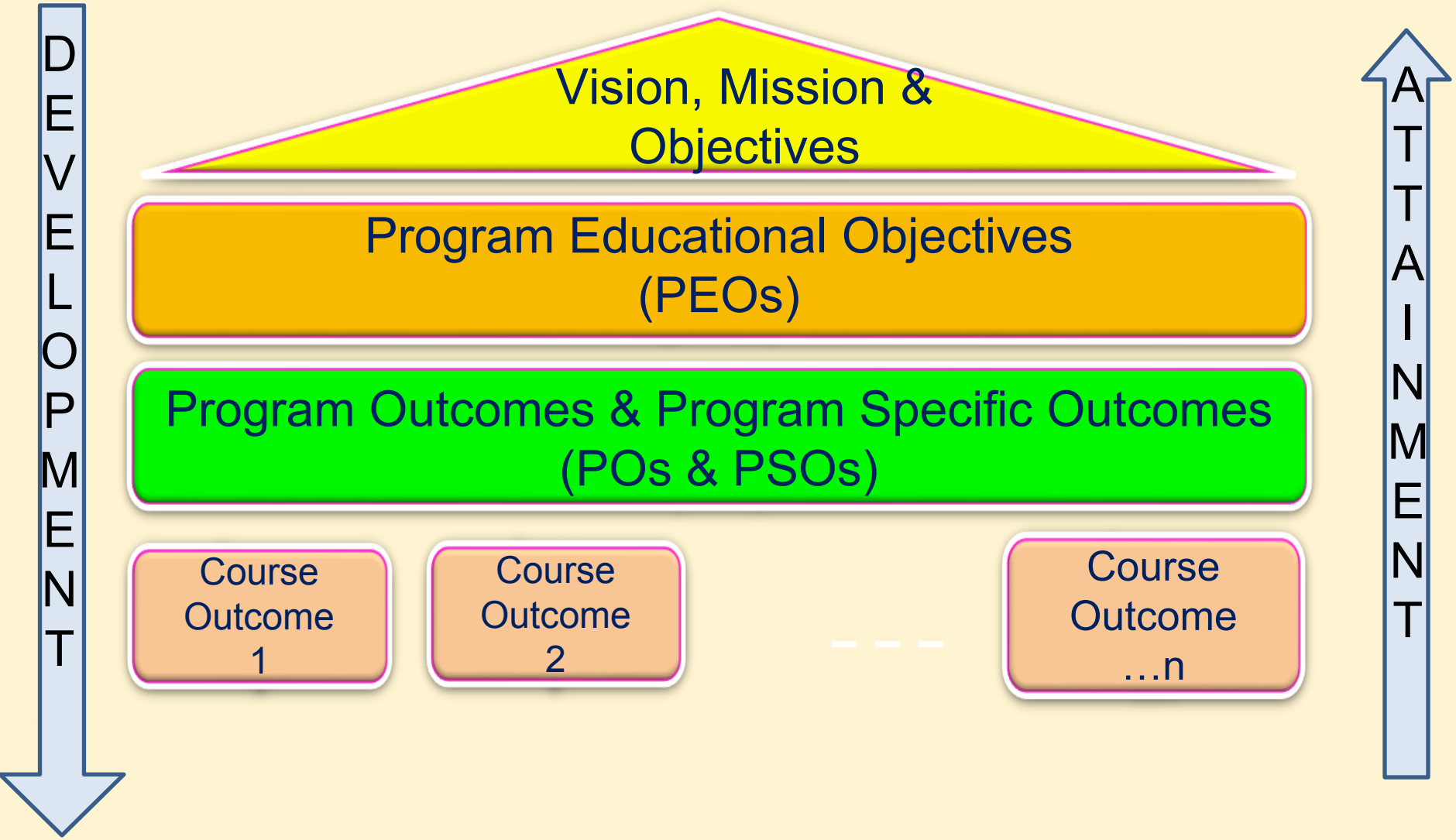
  2nd level - Current Students

  3rd level - Employers, Alumni, Industry Experts

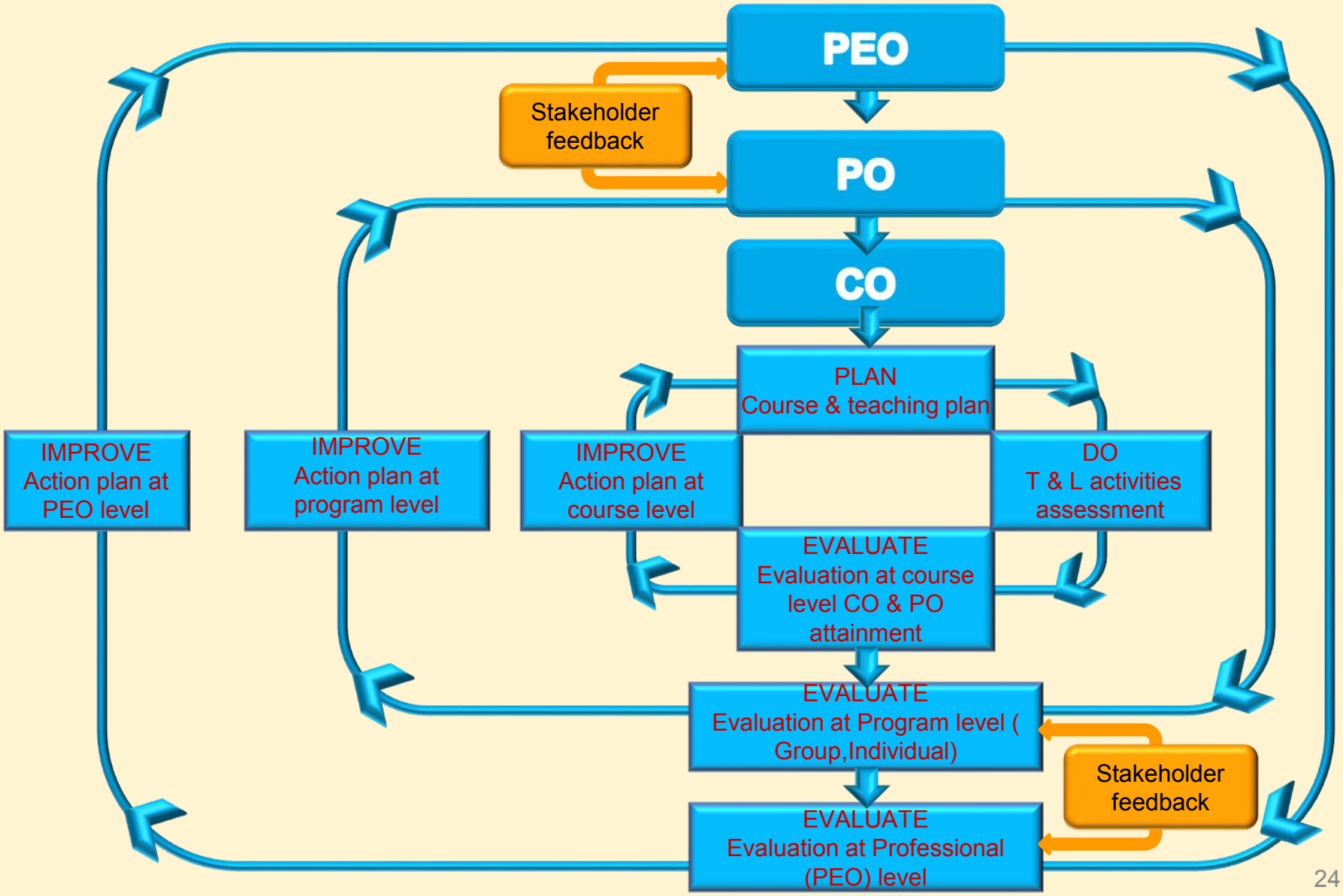
- Step II - Benchmarking with the similar category Institutions: Vision and Mission
- Step III - Validation by the experts from academia and industry
- Step IV- Wide publicity in the Institution
- Step V - Review in closed loop every 5-7 years

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



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

- Generate a "Mission of the Department – PEOs matrix" with justification / 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 "-" . In this document wherever the term 'Process' has been used its meaning is process formulation, notification and effective implementation.

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

CRITERION 2	Program Curriculum and Teaching–Learning Processes	200

2.1. Program Curriculum (50)

2.1.1. State the process used to identify extent of compliance of the Board curriculum for attaining the Program Outcomes (POs) and Program Specific Outcomes (PSOs) as mentioned in Annexure I. Also mention the identified curricular gaps, if any (30)

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

Effective Process implementation (15) + Curricular Gaps (15)

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

- *Documentary evidence*

2.1.2. Content beyond the syllabus for the attainment of POs & PSOs (20)

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

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

Intimation to the Board (2) + Delivery details (12) + Mapping (6)

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 (150)

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

Processes may include adherence to academic calendar and improving instruction methods using pedagogical initiatives such as –

- Real world 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) + Use of various instructional planning & delivery methods (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. Initiative to improve the quality of semester tests and assignments (15)

Mention the initiatives, Implementation details related to quality assurance of semester tests and assignments that encourage and empower the students to develop skills and learning levels related to –

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

Process for internal semester question paper setting and evaluation and effective process implementation (5)

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

Evidence of COs coverage (5)

2.2.3. Quality of Experiments (15)

Batch size per experiment, quality of apparatus, lab manual, lab file / report, mapping of the experiments with outcomes.

- Experimental methodologies (08) , Relevance to Outcomes (07)

2.2.4 Quality of Student projects and Report Writing (25)

Consideration to factors including, but not limited to –

- Environment, Safety, Ethics, Cost effectiveness
- Type (application, product, review, live industry problems, Hardware / Software based, Group size etc.)
- Standards
- Processes related to project identification, allotment, continuous monitoring, evaluation
- Demonstration of working prototypes and 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)

2.2.5. Industry interaction and Industry internship / summer training (30)

- Industry supported laboratories (2)
- Delivery of appropriate course work by Industry experts (8)
- Industry visits / tours for students (5)
- Industrial training (10)
- Post training Assessment (5)
- Involvement of industry in setting / running the labs
- Periodic engagement with industry experts in delivery of courses
- Industry tours mandated into the student preparation
- Industrial training for minimum two weeks for all students
- Assessing the impact of training on students' learning

2.2.6. **Information Access Facilities and Student Centric Learning Initiatives (15)**

Availability of :

- Availability of facilities & Effective Utilization (10)
- Student Centric Learning Initiatives & Effective Implementation (5)

Specify the

- ICT facilities, e-learning facilities
- Materials
- Scope for self-learning
- Webinars
- NPTEL
- Podcast
- MOOCs

Documentary evidence – ICT enabled delivery methods, smart classrooms, e-resources, digital library

2.2.7 New Initiatives for embedding Professional Skills (15)

Initiatives related to develop specialised skill development programs to include:

Core employability skill enhancement Initiatives & Effective implementation (8)

Personality development related initiatives & effective implementation (7)

Documentary evidence

2.2.8 Co-curricular & Extra Curricular Activities (10)

Specify the

Co-curricular & extra-curricular activities

Quantity activities such as NCC, NSS

Documentary evidence

CRITERION 3	Course Outcomes and Program Outcomes	100

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 of study, however, should be prepared for all courses and made available as evidence, if asked (5)

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.
6. Determine whether a random process is stationary (if possible) or wide- sense stationary (WSS)

3.1.2. CO-PO matrices of courses selected in 3.1.1 (six matrices to be mentioned; one per semester from 1st to 6th semester) (05)

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
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)

If there is no correlation, put "-"

Similar table is to be prepared for PSOs

Justification of the mapping (5)

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
C101										
C202										
C303										
….										
….										
…										

Note:

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

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

If 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 (10)

3.2. Attainment of Course Outcomes (40)

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*
  - *Internally developed assessment exams*
  - *Project presentations*
  - *Oral Exams*

List of Assessment process (5)

Quality and relevance of processes and tools (5)

3.2.2. Record the attainment of Course Outcomes of all courses with respect to set attainment levels (30)

- Program shall have set Course Outcome attainment levels for all courses.

  The attainment levels shall be set considering average performance levels in the Board Examination for the assessment years. Attainment level is to be measured in terms of student performance in Internal assessment with respect to the Cos of a course plus the performance in the Board examination.

Methodology to define attainment levels and its compliance, data collection, verification, analysis and decision making (30)

Measuring Course Outcomes attained through Board Examinations

*Note: For cases where the **Board 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 Board average percentage marks or set attainment level in the final examination*

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

***Attainment Level 3:** **80%** students scoring more than Board 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 Board Examination: Substantial i.e. 3

Attainment through Internal Assessment: Moderate i.e. 2

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

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

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 (40)

Describe assessment tools and processes used for assessing the attainment of each of the POs & PSOs.

PROGRAM OUTCOMES (ANNEXURE 1)

1. **Basic knowledge:** An ability to apply knowledge of basic mathematics, science and engineering to solve the engineering problems.

2. **Discipline knowledge**: An ability to apply discipline - specific knowledge to solve core and/or applied engineering problems.

3. **Experiments and practice:** An ability to plan and perform experiments and practices and to use the results to solve engineering problems.

4. **Engineering Tools: Apply appropriate technologies and tools with an understanding of the limitations.**

5. **The engineer and society**: Demonstrate knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering practice.

PROGRAM OUTCOMES (ANNEXURE 1)

Program Specific Outcomes
Program specified 2 – 4 PSOs

6. **Environment and sustainability**: Understand the impact of the engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.

7. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

8. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams.

9. **Communication:** An ability to communicate effectively.

10. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes.

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 proficiency in following the ACM Code of Ethics*
- *Demonstrate familiarity with computer hardware and networking*
- *Demonstrate knowledge of, and the ability to write programs for, the World Wide Web*
- *Interpret the impact of change in work, society and world environments on computer programming*

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(POs) and Program Specific Outcomes(PSOs) (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 (2)
Quality/Relevance of assessment tools and processes (8)

- *Direct and Indirect Assessment Tools & Processes*
- *Effective implementation*
- *Direct Assessment methodology*
- *Indirect assessment formats/collection/analysis*
- ***Decision making***

3.3.2. Provide results of evaluation of each PO & PSO (30)

- *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

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

Results and level of attainment of each PO / PSO (20)

Overall levels of attainment (10)

- *Appropriate attainment levels*
- *Documentary evidences*
- *Attainment from Core courses*

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
C101										
C102										
…										
….										
….										
C309										
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 C304
2. The attainment level for each of the four courses will be as per the examples shown in 3.2.2
3. PO attainment level will be based on attainment levels of direct assessment and indirect assessment
4. 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

5. Assuming following actual attainment levels:

Direct Assessment

- C201 – High (3)
- C302 – Medium (2)
- C303 – Low (1)
- C304 – High (3)

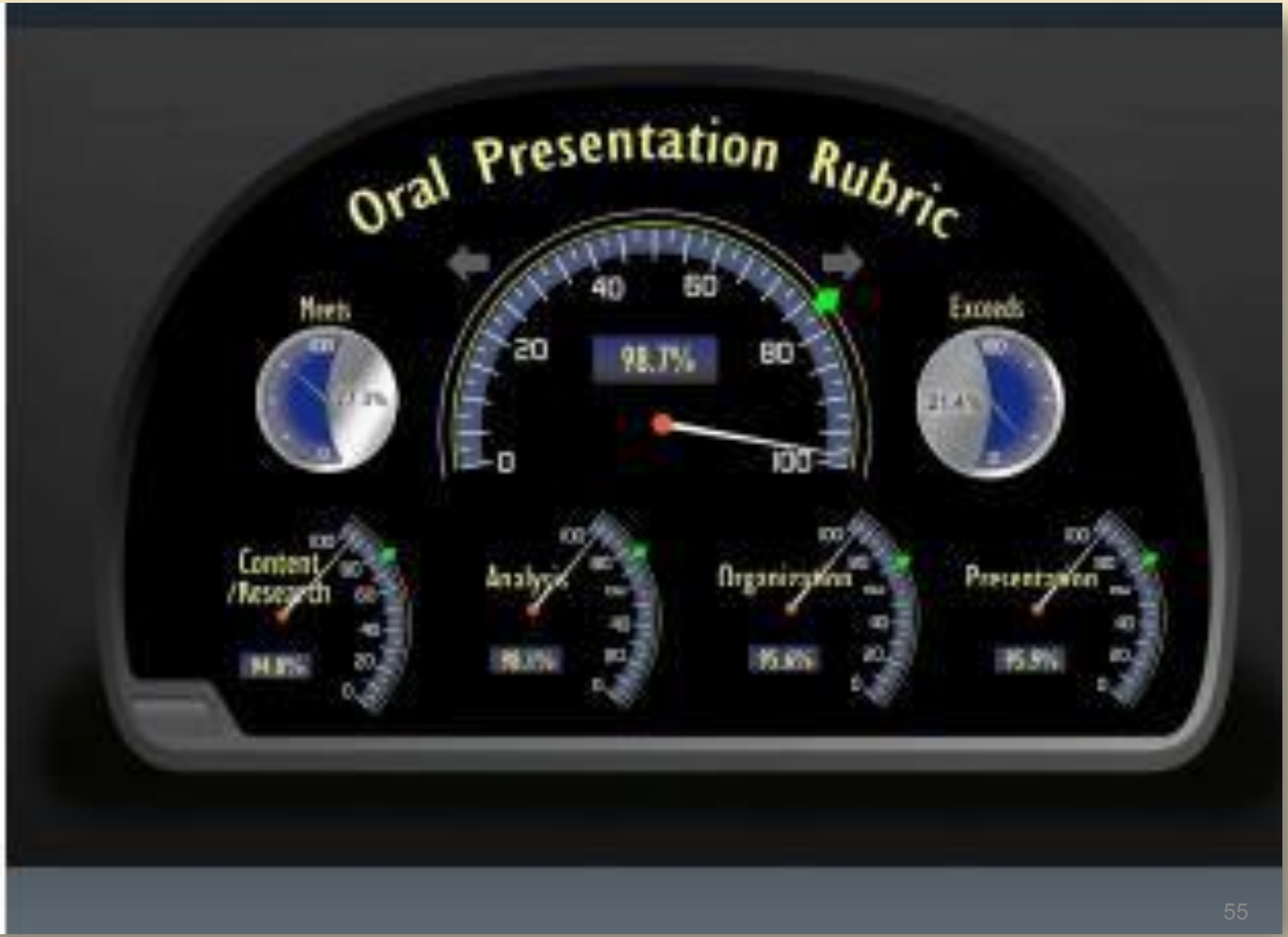
Attainment level will be summation of levels divided by no. of courses
(3+2+1+3)/4 = 9 / 4 = 2.25

Indirect Assessment

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

P O 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

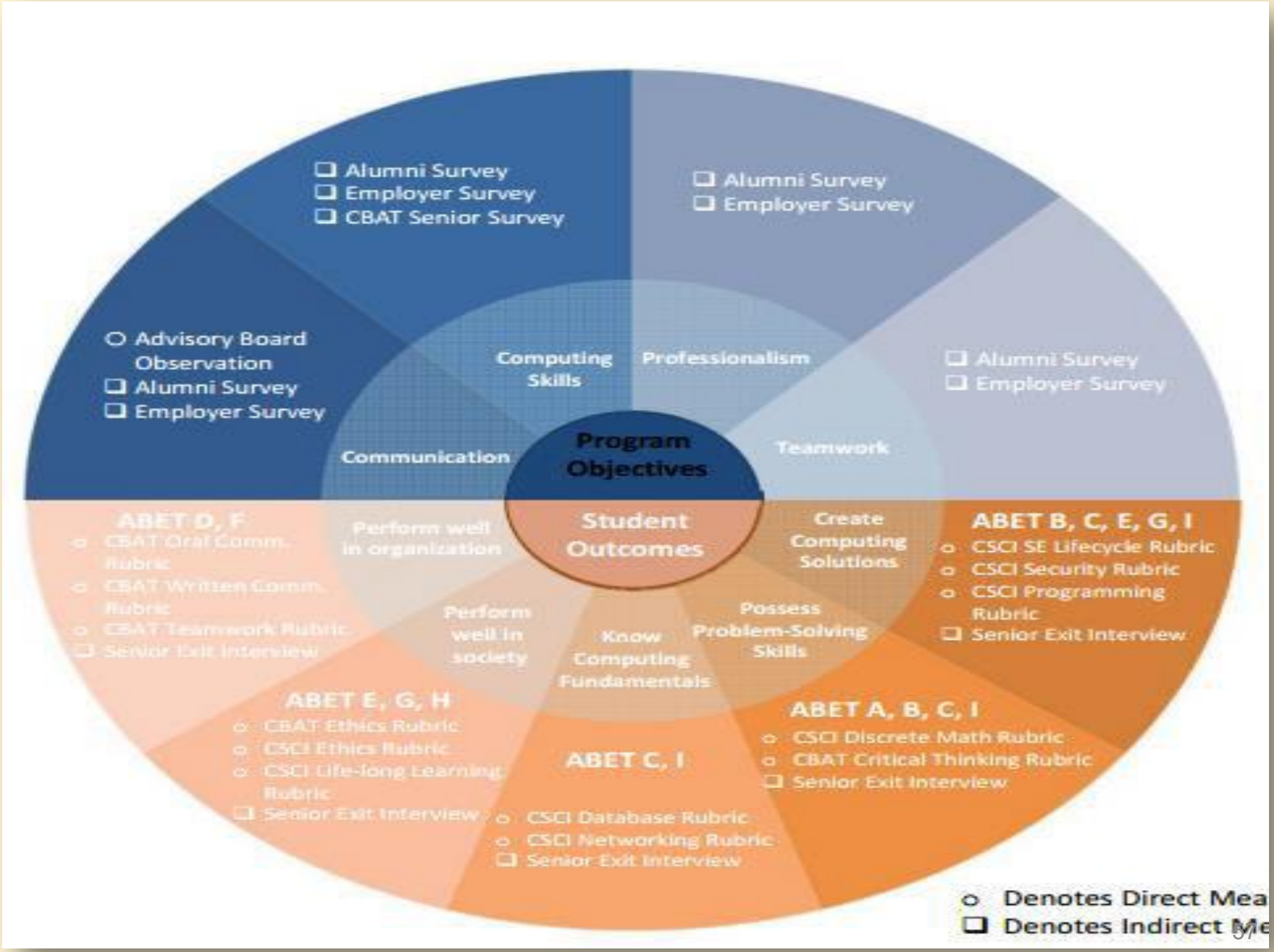

Oral Presentation Rubric
Meets
Exceeds
0
20
40
60
80
100
Content /Research
Analysis
Organization
Presentation

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	200

Item *(Information to be provided cumulatively for all the shifts with explicit headings, wherever applicable)*	CAY	CAYm1	CAYm2
Sanctioned intake strength of the program (*N*)			
Total number of students admitted through state level counseling (N1)			
Number of students admitted through Institute level quota (*N*2)			
Number of students, admitted lateral entry (N3)			
Total number of students admitted in the Program (N1 + N2 + N3)			

Year of entry	***N*1 + *N*2 + N3** (As defined above)	Number of students who have successfully passed without backlogs in any year of study (Without Backlog means no compartment or failures in any semester/year of study)		
		I Year	II Year	III Year
CAY				
CAYm1				
CAYm2 (LYB)*				
CAYm3 (LYBm1)				
CAYm4 (LYBm2)				

***Latest Year Batch and m1 & m2 indicate Minus one year and Minus 2 years respectively.**

Similarly another table With Backlog

4.1. Enrolment Ratio (20)

Enrolment Ratio = (N1+N2) / 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	12
>=50% students	08
<50% students	0

4.2. Success Rate in the stipulated period of the program (60)

4.2.1. Success rate without backlogs in any semester/year of study (40)

SI = (Number of students who have passed from the program without backlog) / (Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry)

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

Success rate without backlogs in any year of study = 40 × Average SI

4.2.2. Success rate in stipulated period (20)

SI= (Number of students who have passed 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)

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

Success rate = 20 × Average SI

Note: If 100% students clear without any backlog then also total marks scored will be 60 as both 4.2.1 & 4.2.2 will be applicable simultaneously

4.3. Academic Performance in Third (Final) Year (15)

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

***API** = ((Mean of 3rd Year (Final 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 Final Year / 10)) x (number of successful students / number of students appeared in the examination)*

Successful students are those who passed in all the final year courses

4.4. Academic Performance in Second Year (20)

*Academic Performance Level = 2.0 * 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. Academic Performance in First Year (25)

*Academic Performance Level = 2.5 * Average API (Academic Performance Index)*

***API** = ((Mean of 1st 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 First /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

4.6. Placement and Higher Studies (40)

Assessment Points = 40 × (1.25 X + Y) / N where X= Number of students placed in companies or Government sector through on/off campus recruitment

Y = Number of students admitted to higher studies

N = Total number of final year students

Item	Latest Passed Batch	Latest Passed Batch Minus 1	Latest Passed Batch Minus 2
Total No. of Final Year Students (N)			
No. of students placed in companies or Government Sector (x)			
No. of students admitted to higher studies (Y)			
1.25X + Y			
Placement Index : (1.25 X + Y) / N			
T = Average of (1.25 X + Y) / N			
Assessment = 40 x T (To be limited to 40)			

4.7. Professional Activities (20)

4.7.1. Professional societies / student chapters and organizing technical events (15)

- Relevant details

  - Professional Society/Chapters (10)
  - No. and Quality of engineering events organized at the Institute (5)

4.7.2. 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)

- *Documentary evidences*

CRITERION 5	Faculty Information and Contributions	150

Name of the Faculty Member	Qualification, Board and Year of Graduation	Designation and date of joining the institution	Distribution of Teaching Load (%)			Academic Research		Years of experience
			1st Year	2nd Year	3rd Year	Research Paper Publications	Faculty receiving M.Tech / Ph.D during the Assessment Year	

To provide the information for the current and previous three assessment years i.e. for Current year and CAY, CAYm1 & CAYm2.

5.1. Student-Faculty Ratio (SFR) (15) + Availability of HOD (5); (20)

S:F ratio = N/F; N = First year approved intake + 2x (first year approved intake + 20% of lateral entry),
F = No. of faculty = (a + b – c) for every assessment year

a: Total number of full-time regular Faculty serving fully to All Years of 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 15 to a minimum of 10 for average SFR between 20:1 to 25:1, and zero for average SFR higher than 25:1

5.2. Faculty Qualification (20)

FQ =2* x [(10 x + 7 y) / F)] where x is no. of faculty with M.Tech and y is no. of faculty with B.Tech., F is no. of faculty required to comply 1: 20. Faculty Student ratio (no. of faculty and no. of students required to be calculated as per 5.1)

Documentary evidences-Faculty Qualification.

5.3. Faculty Retention (20)

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 during the period of assessment keeping CAYm2 as base year	20
>=75% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	15
>=60% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	10
>=50% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	5
<50% of required Faculty members retained during the period of assessment keeping CAYm2 as base year	0

5.4. Faculty as participants in Faculty development / training activities (30)

A. Faculty scores maximum 5 points for participation
B. 3 Points Participation in 2 to 5 days Faculty / Faculty Development Program (5)
C. 5 points Participation > 5 days Faculty / Faculty Development Program (5)

Assessment = 6 x Sum / 0.5 Required Faculty (Marks limited to 30)

Name of the Faculty	Max. 5 per Faculty		
	CAYm2	CAYm1	CAY
Sum			
RF= Number of Faculty required to comply with 20:1 Student-Faculty ratio as per 5.1			
Assessment = 6 × (Sum/0.5RF) (Marks limited to 30)			
Average assessment over three years (Marks limited to 30) =			

5.5. Product development, consultancy, manufacturing contracts, Testing contracts (20)

Provide details:

- Product Development (5)
- Consultancy (5)
- Manufacturing contracts (5)
- Testing Contracts (5)

5.6. 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 (5)
- Its implementation and effectiveness (15)
- Qualification up-gradation of faculty(10)

5.7 Implementation of Career advancement Scheme (10)

- *Documentary evidences*

CRITERION 6	Facilities and Technical Support	100

6.1. Availability of adequate, well equipped classrooms to meet the curriculum requirements (10)

6.2 Availability of adequate, well-equipped workshops to meet the curriculum requirements (10)

6.3 Adequate and well-equipped laboratories, and technical manpower (30)

***A. Adequacy* (5)**

***B. Well equipped Labs* (15)**

***C. Technical Manpower support - Eligible and Adequate* (10)**

S N	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.							

6.4. Additional facilities created for improving the quality of learning experience in laboratories (20)

***A. Facilities* (05)**

***B. Effective Utilization* (05)**

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.						

6.5. Laboratories: Maintenance and overall ambiance (10)

Self-Explanatory

6.6. Availability of computing facility in the department (10)

No. of Computer terminals	Students Computer Ratio	Details of Legal Software	Details of Networking	Details of Printers, Scanners etc.
1.				

6.7. Language Lab (10)

Availability and Utilization

CRITERION 7	Continuous Improvement	75

7.1. Actions taken based on the results of evaluation of each of the POs & PSOs (25)

- Documentary evidence of Pos & PSOs attainment levels (10)
- Identify the gaps / shortfalls / improvement for continuous improvement perspective (5).
- Plan of action to bridge the gap and its Implementation (10)

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

POs	Target Level	Attainment Level	Observations
PO1: Statement as mentioned in Annexure I			
PO1:			
Action 1: Action n:			
PO 2: Statement as mentioned in Annexure I			
PO2			
Action 1: Action n:			
PO n: Statement as mentioned in Annexure I			
PO n			
Action 1: Action n:			

Similar Tables should be presented for all POs & PSOs

7.2 Improvement in Success Index of Students without the backlog (10)

SI = (Number of students who have passed 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)

Assessment shall be based on improvement trends in success indices. Marks are awarded accordingly.

Items	LPB*	LPBm1	LPBm2
Success index (from 4.2.1)			

7.3. Improvement in Placement and Higher Studies (10)

Assessment is based on improvement in:

- Placement: number, quality placement, core industry, pay packages etc. (5)
- Higher studies: admissions in premier institutions (5)

Items	LPB*	LPBm1	LPBm2
Placement index (criteria 4.6)			

7.4. Improvement in the Academic Performance in Final Year (10)

- Assessment is based on improvement in:

Documentary evidences

-

Items	LPB*	LPBm1	LPBm2
Academic Performance Index (from criteria 4.3)			

7.5 Internal Academic Audits to Review Complete Academics & to Implement Corrective Actions on Continuous Basis (10)

Items	CAY	CAYm1	CAYBm2
Internal Academic Audits			

7.6 New Facility created in the program (10)

Items	CAY	CAYm1	CAYBm2
New Facility Created			

Institute Level Criteria

CRITERION 8	Student Support Systems	50

8.1. Mentoring system to help at individual level (10)

- 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

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

- Feedback collected for all courses: YES/NO
- 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

8.3. Feedback on facilities (5)

Assessment is based on -

- Student Feedback collection
- Analysis and corrective action taken

8.4. Career Guidance, Training, Placement (20)

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.*

Availability (5), Management (10), Effectiveness (5)

8.5. Entrepreneurship Cell /Technology Business Incubator(5)

The institution may specify –

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

Availability (1), Management (2), Effectiveness (2)

CRITERION 9	Governance, Institutional Support and Financial Resources	75

9.1. Organization, Governance and Transparency (25)

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

Vision statement typically indicates aspirations and Mission statement states the action plan 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*

9.1.2. Governing body, administrative setup, functions of various bodies, define rules, procedures, recruitment and promotional policies (5)

- List the Governing Body Composition, their memberships, functions & responsibilities (2)
- Minutes of the meetings and action taken reports (1)
- The published service rules, policies and procedures with the year of publication (1)
- Extent of awareness among the employees/students (1)

9.1.3. Decentralization in working and grievance redressal mechanism (5)

- List the names of the faculty members who have been delegated powers for taking administrative decisions (2)
- Specify the mechanism and composition of Grievance Redressal cell including Anti Ragging committee & Sexual Harassment Committee (3)

•*Documentary evidences*

9.1.4. Delegation of financial powers (5)

- Demonstrate the utilization of financial powers for each year of the assessment years (5)

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

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

9.2. Budget Allocation, Utilization, and Public Accounting at Institute level (10)

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

For CFY

- Note :

1. **Non recurring expenditure will include, not limited to ; the following:**

- Civil / Construction costs
- Equipment (laboratory / workshops / others)
- Capital items.

2. **Recurring expenditure will include; not limited to; the following:**

- Maintenance cost
- Consumable materials
- Salaries & Honorarium
- Expenses on Seminar / Training Programs / Faculty development programs
- Annual Events expenses
- Travel expenses
- Advertisement & Printing expenses
- Annual Registration cost / taxes
- Water Expenses
- Power Expenses
- Security Expenses

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

9.2.1. Adequacy of budget allocation (4)

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

Process & Adequacy (4)

9.2.2. Utilization of allocated funds (4)

• The institution needs to state how the budget was utilized during the last three years

9.2.3. Availability of the audited statements on the institute's website (2)

• The institution needs to make audited statements available on its website (2)

.

9.3. Program Specific Budget Allocation, Utilization (15)

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 in CFY (till …):		Total No. of students in CFY:
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								
Maintenance & Spares								
R & D								
Training and Travel								
Miscellaneous expenses *								
Total								

* Items to be mentioned

CFY : Current Financial Year – CFYm1 (Current Financial Year minus 1) CFYM2 (Current Financial Year minus 2)

9.3.1. Adequacy of budget allocation (07)

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

Adequacy (7)

9.3.2. Utilization of allocated funds (08)

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

9.4. Library and Internet (20)

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

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

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

9.4.2. Internet (10)

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

9.5 Institutional Contribution to the Community Development (5)

Thanks