The present letter is a follow-up to the letter dated 08.05.2015 and the letter dated 23.07.2015, with the reference number 35/不称.03.2015.

The following are the main points:

1. The letter dated 08.05.2015 requested the institution to submit the necessary documents by 30.09.2015. This request was made in accordance with the guidelines issued by the Regional Accreditation Board (RUSA), the All India Council for Technical Education (AICTE), the Ministry of Human Resource Development (MHRD), and the National Board of Accreditation (NBA).

2. The letter dated 23.07.2015 clarified the requirements and the submission deadline of 30.09.2015. It was noted that the institution had not submitted the required documents by the deadline.

3. This letter serves as a reminder to submit the required documents by 30.09.2015. The institution is requested to ensure that all necessary documents are submitted promptly.

4. The institution is advised to ensure that the submission is made in accordance with the guidelines issued by the respective authorities.

If no response is received by the deadline, the institution will be informed about the consequences.
1. ದೃಢೀಕರಣ ಕೋರುವುದು ಏಕಕ್ಷ್ಯಾವಾದ ಪ್ರವೇಶಿಸುವುದು ಲೋಕ ಸರಕಾರದಲ್ಲಿ ಸಹಾಯವು ಸಮರ್ಪಿಸುತ್ತದೆ.
2. ಕೋರುವುದು ಮೇಲೆ ಸಂಬಂಧಿಸಿದಂತೆ ಸಹಾಯವನ್ನು ಸಮರ್ಪಿಸುತ್ತದೆ.
3. ದೃಢೀಕರಣ ಕೋರುವುದು ಎಣ್ಣೆ (branch)ನಲ್ಲು ಸಂಯೋಜನಾದಂತೆ ಸಹಾಯದಲ್ಲಿ
 ಸಮರ್ಪಿಸುತ್ತದೆ.
4. ಅವರೆಯಿಂದ ಸಂಯೋಜನಾದಂತೆ ಉಪಯೋಗಿಸಿದಂತೆ files & formats ಖೇಳುವುದು ಸಮರ್ಪಿಸಿದಂತೆ ಸಮಾಧಾನಪಡಲು ಸಹಾಯಗಾರು.
5. ಕೋರುವುದು ಮೇಲೆ ಸಂಬಂಧಿಸಿದಂತೆ ಕೋರುವುದು ಸಂಯೋಜನಾದಂತೆ SAR-2015 ಲಾಗು ಹೋದಿರುವುದನ್ನು
 ಸಮರ್ಪಿಸಿದಂತೆ ಸಹಾಯಿಸಲು ಸಹಾಯಗಾರು.

ಶ್ರೇದ್ಧಿಯು, ಒಂದು ಸಮಯ ಪಡೆದು ಚಿಕ್ಕರಿಸಿ ಕೋರುವುದು ಏಕಕ್ಷ್ಯಾವಾದ ಪ್ರವೇಶಿಸುವುದು ಲೋಕ ಸರಕಾರದಲ್ಲಿ ಸಹಾಯದಲ್ಲಿ ಸಮರ್ಪಿಸಿದಂತೆ ಆಯುಗ್ಧಾಂಕರು ಹೊಲಿಸುತ್ತದೆ. ಆದರೆ, ತನ್ನ ಮೇಲೆ ಸಂಯೋಜನಾದಂತೆ ಕೋರುವುದು ಮುಸೂನಿಸುವುದು ಹೋದಿರುವುದನ್ನು (4)ವರೆ ಸಹಾಯವನ್ನು ಸಮರ್ಪಿಸಿದಂತೆ ಒಂದು ತಂದೆ ಸಹಾಯಿಸಲು ಸಹಾಯಗಾರು.

ಆದರೆ, ಒಂದು ವಿದ್ವನ್ನು ಕೆಲವು ಮೇಲೆ ಸಂಬಂಧಿಸಿದಂತೆ ಕೋರುವುದು ಸಮರ್ಪಿಸಿದಂತೆ ಕೃಷಿ ಸಂಸ್ಥೆಗಳಿಗೆ ಪ್ರತ್ಯೇಕಿಸಿದಂತೆ ಒಟ್ಟು ಪಡೆದು ಸಹಾಯಿಸಲು ಸಹಾಯಗಾರು.

ಎರಡರು ಸಹಾಯಿಸುವುದು:
1. ಅವರೆ ಸಹಾಯ/ಸಹಾಯಿತೆ/ಯಾರು ಅತ್ಯಂತ ದೃಢೀಕರಣ ಸಂಬಂಧಿಸಿದಂತೆ ಸಹಾಯವನ್ನು ಸಹಾಯ;
2. ಒರೆಯರೊಗಿಕೆ ಸಂಯೋಜನಾದಂತೆ ಸಹಾಯ ಸಹಾಯ;
3. ಸಹಾಯದ ದೃಢೀಕರಣ ಸಾಹಿತ್ಯ.

[ಹಳ್ಳಿಯು ಪ್ರತ್ಯೇಕ]
GOVERNMENT OF KARNATAKA  
Department of Technical Education  
NBA ACCREDITATION-DIPLOMA PROGRAMS (POLYTECHNICS)  
FILES & FORMATS

Diploma Programs in India
• Are offered as per the regulations of All India Council for Technical Education (AICTE)
• The programs are of 3 year duration, affiliated to respective state Board of technical examinations, Directorate of technical Education of the concerned state
• Accreditation formats are same for Tier-I (Academically Autonomous) and Tier-II (Academically Non Autonomous) diploma programs

National Board of Accreditation (NBA)
• Established in the year 1994 under Section 10 (u) of AICTE Act
• NBA became Autonomous in January 2010 and in April 2013 the Memorandum of Association and Rules of NBA were amended to make it completely independent of AICTE, administratively as well as financially
• NBA does not receive any grant either from the Government or from any other regulatory body of technical and higher education

Mission of NBA
“To stimulate the quality of teaching, self evaluation and accountability in higher education and facilitate the Institutions in realizing their academic objectives, adopt teaching practices that enable them to produce high quality professionals and to assist them in continuously contributing to the domain of knowledge through innovations & research”.

Accreditation
• Accreditation is a process of quality assurance and improvement, whereby a program in an approved Institution is critically appraised to verify that the Institution or the program continues to meet and/or exceed the Norms and Standards prescribed by regulator from time to time.

• It is a kind of recognition which indicates that a programme or Institution fulfils certain standards.

• Accreditation is given for a maximum period of five years.

• Programs, and not Educational Institutions, are considered for accreditation.

• Programs to be accredited should be offered by an educational Institution which has been formally approved as an educational Institution by the concerned regulatory authority. (AICTE and DTE).

• Programs from which at least two batches of students have graduated will be considered for accreditation.

• Programs are considered for assessment and accreditation only at the written request of the educational institution and after agreeing to abide by the NBA’s accreditation manual, rules, regulations and notifications issued from time to time.
AICTE Approval for the Polytechnic

- Based on Physical, financial and infrastructure resources
- Based on Detailed Project Report /Application submitted for extension approval
- Quantitative assessment
- Straightforward decision (Yes/No)

NBA Accreditation

- Actual performance based on inputs and outputs
- Assessment of Performance
- Availability and quality of human resources
- Based on self assessment questionnaires and a SWOT analysis
- Qualitative assessment
- Depends on Quality Systems
- Detail Self assessment report submitted to NBA

Accreditation serves to notify

- Parents and prospective students that a program has met minimum standards
  - Faculty, HOD, Principal of a program’s strengths and weaknesses and of ways to improve the programme
  - Employers that graduates are prepared to begin professional practice
  - The public that graduates are aware of societal considerations

Purpose of accreditation is NOT TO

- find faults with the institution but to assess the status-ante of the performance
- denigrate the working style of the institution and its programs but to provide a feedback on their strengths and weaknesses
- demarcate the boundaries of quality but to offer a sensitizing process for continuous improvement in quality provisions
- select only institutions of national excellence but to provide benchmarks of excellence and identification of good practices

Benefits of Accreditation

- Facilitates continuous Quality Improvement
- Demonstrates accountability to the public
- Improves staff morale
- Recognizes the achievements/innovations
- Facilitates information sharing
- Priority in getting financial assistance Helps the Institution to know its strengths, weaknesses and opportunities
- Initiates Institutions into innovative and modern methods of pedagogy
- Promotes intra and inter-Institutional interactions
Pre 2013 Scenario

- Educational quality measurements focused on inputs, activities and outputs, such as resources used, classes taught, articles published, placements and graduate enrolments
- Such performance indicators provide no measurement of the degree to which Institutions of higher learning actually develop the knowledge and skills of their students
- These measurements are ill-suited to inform governments, students and the general public about teaching and learning quality
- In the absence of comparable learning outcomes assessment across institutions, ratings and rankings are widely used as proxies for relative educational quality.
- NBA criteria were mainly input-process-output related and there were no direct measures of quality of learning

Washington Accord

- It recognizes the substantial equivalency of programs accredited by those bodies and recommends that graduates of programs accredited by any of the signatory bodies be recognized by the other bodies as having met the academic requirements for entry to the practice of engineering

Post 2013 Scenario

- India became a signatory to the Washington Accord
- This requires the Outcomes of engineering programs should be identified in the spirit of Graduate Attributes announced by Washington Accord.

Present System of Engineering Education

- Diploma curriculum is a collection of courses as decided by CDC of DTE
- Each course is defined by a list of topics selected from identified textbook(s)
- Students learn as per their understanding of final examinations, which have their own independent dynamics
- A very significant percentage of questions in final examinations today belong to the category of remembering information

What are Outcomes?

- An outcome of an education is what the student should be able to do at the end of a program/ course/ instructional unit.
- Outcome-based education is an approach to education in which decisions about the curriculum are driven by the exit learning outcomes that the students should display at the end of the program/ course.
- Outcomes are the abilities the students acquire at the end of the program
- In outcome-based education, “product defines process”.
- It is the results-oriented thinking and is the opposite of input-based education where the emphasis is on the educational process and where we are happy to accept whatever is the result”
• Outcome-based education is not simply producing outcomes for an existing curriculum.

Levels of Outcomes

• **Program Educational Objectives:** PEOs are broad statements that describe the career and professional accomplishments in five years after graduation that the program is preparing graduates to achieve.

• **Program Specific Outcomes:** PSOs are statements that describe what the graduates of a specific engineering program should be able to do

• **Program Outcomes:** POs are statements that describe what the students graduating from engineering programs should be able to do

• **Course Outcomes:** COs are statements that describe what students should be able to do at the end of a course

What is SAR (Self Assessment Report?)

• SAR is compilation of such data and information pertaining to a given program for its assessment (identifying strength and weaknesses) vis-à-vis accomplishment of defined POs and PSOs by the college itself.
  – SAR has two parts
  – Part –I seeks Institutional /Departmental information
  – Part –II seeks information on nine criteria and Programme Educational Objectives,
    Programme Outcome, Programme Curriculum, Students’ Performance, Faculty Contributions, Facilities and Technical Support, Academic Support Units and Teaching-Learning Process, Governance, Institutional Support and Financial Resources, Continuous Improvement in Attainment of Outcomes

• NBA reconfirms or differs from the assessment of the institution, using a mechanism of peer review, in its evaluation report.
## SAR Criteria

<table>
<thead>
<tr>
<th>Criteria No.</th>
<th>Criteria</th>
<th>Mark/Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Program Level Criteria</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Vision, Mission and Program Educational Objectives</td>
<td>50</td>
</tr>
<tr>
<td>2.</td>
<td>Program Curriculum and Teaching–Learning Processes</td>
<td>200</td>
</tr>
<tr>
<td>3.</td>
<td>Course Outcomes and Program Outcomes</td>
<td>100</td>
</tr>
<tr>
<td>4.</td>
<td>Students’ Performance</td>
<td>200</td>
</tr>
<tr>
<td>5.</td>
<td>Faculty Information and Contributions</td>
<td>150</td>
</tr>
<tr>
<td>6.</td>
<td>Facilities and Technical Support</td>
<td>100</td>
</tr>
<tr>
<td>7.</td>
<td>Continuous Improvement</td>
<td>75</td>
</tr>
<tr>
<td>8.</td>
<td>Student Support Systems</td>
<td>50</td>
</tr>
<tr>
<td>9.</td>
<td>Governance, Institutional Support and Financial Resources</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td>1000</td>
</tr>
</tbody>
</table>

### Award of Accreditation
- **Full Accreditation for 5 Years:** 750 out of 1000 points with a minimum of 60% points in Criteria 1, 4, 5, 6, 7 and 8
- **Provisional Accreditation for 2 Years:** Minimum 600 out of 1000 points
- **No Accreditation:** < 600 points out of 1000 points

### Vision & Mission of the Department

- Vision of the Institute leads to Mission of the Institute
- Vision of the Department leads to Mission of the Department
- Committee (with representation of all stakeholders including management) receives inputs from Stakeholders (Industry, Alumni, Faculty, Graduating students)
Program Educational Objectives

Mission of the Department

Committee (with representation of all stakeholders)

Stakeholders (Industry, Alumni, Faculty, Graduating students)

POs and PSOs

NBA

Committee (with representation of all stakeholders)

Stakeholders (Industry, Alumni, Parents, Faculty, Graduating students)

PEO-PO Matrix
Course Outcomes

Program Outcomes & Program Specific Outcomes

lead to

Curriculum

consists of curriculum components

Humanities & Social Sciences
Basic Sciences
Engineering sciences
Professional Core
Professional Electives
Open Electives
Project

have several

Courses

are described in terms of

Course Outcomes

CO Attainment

Course

is defined in terms of

Course Outcomes

are assessed as per

Assessment Pattern
determines

Assessment Instruments
determine

Students' CO Attainment
determine

PO-PSO attainment through
Course - PO/PSO matrix

has

Course Outcome Target

CO Attainment Gap

leads to a

Plan for closing the CO Gaps or Enhancement of CO Targets
PO Attainment

Program Outcomes and Program Specific Outcomes have Targets

PO attainment Gap leads to Plan for closing the PO Gap or for Enhancement of PO targets

PO/PSO attainment for the Program through courses

PO/PSO attainment through projects

PO/PSO attainment through other activities

C1

Cn
**Vision, Mission, PEOs, POs, PSOs**

**Vision and Mission**

*Vision*: Where you “see” your department down the road; Typically one sentence!

*Mission*: What you “do” to get there? Typically, 2-3 sentences.
- Must follow from Vision and Mission of the Institute
- Must be shared with all stakeholders!
- Better to avoid “flowery” phrases (generally):
  - World-Class
  - Global excellence
  - All round excellence ...
- Must result from a well-defined and recorded process!

**Vision and Mission – Validation process**

- Stakeholders: Top Management (...), Faculty and Staff, Current Students, Alumni, Employers, Industry representatives
- Process:
  - Initial brainstorming at multiple levels;
  - Review, refine, validate (Experts, Advisory Group,...)
  - Wide publicity (Institute web site, campus,)
  - Review “to close the loop” (5 years?)
  - (Regular interactions with new faculty and staff; students?)
- Process documentation
- Records of process implementation

**PEOs (These already defined by CDC in respective Program curriculum document)**

- What the Graduates of the program are expected to achieve within 3 to 4 years of completing the program.
- Can be abstract to some extent; but must be smaller in number and must be
achievable.

• Must follow from Vision and Mission
• Must follow an established process
• Typically, the process is similar to the one for Vision and Mission

• Process Documentation
• Records of Process Implementation
• Must be shared with all stake holders!
• Key elements (generally):
  – Professional success
  – Life-long learning, Higher Education, Research
  – Ethical professional practice
  – Communication skills
  – Team player

• 3 to 5 PEOs may be arrived at following a well-defined and recorded process
• Measurement and closing the loop

(Sample) PEOs

Example: 1 Diplomats of E&E engineering will be able to

• Engage in design of systems, tools and applications in the field of electrical and electronics engineering and allied engineering industries
• Apply the knowledge of electrical and electronics engineering to solve problems of social relevance, and/or pursue higher education
• Work effectively as individuals and as team members in multidisciplinary projects
• Engage in lifelong learning, career enhancement and adopt to changing professional and societal needs

Example: 2 Diplomats of Mechanical engineering will be able to

• To prepare students for successful careers in industry to meet the needs of Indian and Global companies. or to become entrepreneur
• To provide opportunity for students to work in their individual capacity as well as to function as teams on multidisciplinary projects.
• To enable students for lifelong learning and introduce them to professional ethics and sustainable development.
• Identify and engage in query, develop new innovations and products

Mission – PEO Mapping

PEOs must be consistent with the Mission: Example: PEO state that the Graduates will be successful in Research BUT Mission has no mention of Research!

Develop the PEO-Mission Matrix, The strength of mapping between a PEO and an element of Mission may be marked as Substantial, Moderate, Low, Such mapping strengths must be justified

From this perspective also, it is better to limit the number of PEOs to a reasonably small number and have fairly crisp Mission statements.
<table>
<thead>
<tr>
<th>PEO</th>
<th>MISSION-1</th>
<th>MISSION-2</th>
<th>MISSION-3</th>
<th>MISSION-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEO 1</td>
<td>3</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PEO 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEO n</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

- $M_1, M_2, \text{ and so on are elements of the Mission}$
- Correlation levels: 1, 2, or 3 interpreted as follows: 1 - Low; 2 - Moderate; 3 – Substantial. If there is no correlation, indicate by a “–”
- Each mapping needs to be justified
- Example:
  A PEO states that the Graduates will engage in life-long learning; this is mapped to an Element of the Mission statement, "environment conducive for self-directed learning"; PEO$_3$–M$_4$: The mapping strength is “substantial”
  Justification: The learning environment provided in the college is designed to promote self-directed learning by the students; this coupled with the Program Curriculum will lead Graduates to engage in continuous learning in their professional careers. POs and PSOs
  - What the students become capable of, at the end of the program (PEOs look at the Diplomats 3 years after the completion of the program!)
  - POs (10 in number) are defined by NBA; are applicable to all diploma programs; cover not just technology competence but also skills and attitudes!
  - PSOs are program specific; 2 to 4; need to be defined following a documented process

**POs defined by NBA**

**PROGRAM OUTCOMES (POs)**

- **Basic knowledge:** An ability to apply knowledge of basic mathematics, science and engineering to solve the engineering problems.
- **Discipline knowledge:** An ability to apply discipline - specific knowledge to solve core and/or applied engineering problems.
- **Experiments and practice:** An ability to plan and perform experiments and practices and to use the results to solve engineering problems.
- **Engineering Tools:** Apply appropriate technologies and tools with an understanding of the limitations.
- **The engineer and society:** Demonstrate knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering practice.
- **Environment and sustainability:** Understand the impact of the engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development.
• **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

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

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

• **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.

Example 1: The sample Pos of diploma in Mechanical engineering program

**Sample Pos: Diploma Mechanical Engineering is**

a. An ability to apply knowledge of basic mathematics, science and engineering to solve the broadly defined Mechanical engineering problems. (Basic knowledge)

b. An ability to apply discipline-specific knowledge to solve broadly defined Mechanical engineering problems. (Discipline knowledge)

c. An ability to conduct standard tests and measurements, and to conduct, analyze, and interpret experiments (Experiments and practice)

d. An ability to apply the knowledge, techniques, skills, and modern tools of their discipline to narrowly-defined engineering technology activities. (Engineering Tools)

e. Demonstrate knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to engineering practice (The engineer and society)

f. Understand the impact of the engineering solutions in societal and environmental contexts, and demonstrate the knowledge and need for sustainable development. (Environment and sustainability)

g. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. (Ethics)

h. Function effectively as an individual, and as a member or leader in diverse/multidisciplinary teams. (Individual and team work)

i. An ability to apply written, oral, and graphical communication in both technical and nontechnical environments and the ability to use appropriate technical literature (Communication)

j. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the context of technological changes (Life-long learning)

**Program Specific Outcomes (PSOs):**

- Beyond POs
- Specific to the particular program
- 2 to 4 in number
- Must have a process for arriving at them
- Must be realistic
- Program Curriculum and other activities during the program must help the achievement of PSOs as with POs!

**PSOs – Examples**
CSE: (Stem as with POs)
• Develop, test, and maintain Software Systems for business applications
  Develop, test, and maintain Systems Software.
• Maintain legacy software systems

ECE: (Stem as with POs)
• Test modern electronic systems that perform analog and digital signal processing functions.
• Select appropriate technologies for implementation of a specified communication system

ME: (stem as with Pos)
• The program must demonstrate that diplomats can apply specific program principles to Design, fabrication, test, operation, or documentation of basic mechanical systems or processes
• The program make diplomats design, develop, test society needed products and engage in manufacturing or processing such quality products with utmost environment safety and committed for sales of products and provide good service to customer

PSOS – EXERCISES
Closing the Quality Loop
• All the processes required for accreditation need to have the step of “closing the loop”.
• A model useful for understanding this is the Deming’s Quality Cycle:

  PLAN
  DO
  ACT
  CHECK

PLAN:
• We plan the activity; do it; measure the performance (CHECK); and finally based on what was planned and what was actually achieved, initiate appropriate action commencing the next round of the quality cycle.

ACTION:
• If the attainment lags behind the planned target, we need to further analyze the reasons for the same and plan suitable corrective actions for the next round.
• If the achievement exceeds the planned target, we need to ”raise the bar”! Further, we need to examine:
  • If the targets set were too easy; if so, we need to raise the bar in a realistic fashion
• If the targets set were reasonable, then we need to plan for achieving the new target level.

• This concept of Quality Loop operates at all levels of attainment of outcomes. Will be discussed elaborately in later sessions

**At Course Level:**

• Target levels of attainment of Course Outcomes (COs) are set; Course is delivered; actual attainment of COs is determined; AND

• The loop is closed either by increasing the target level for the next offering of the course or

• By planning suitable improvements in the teaching /learning process to increase the actual attainment so as to reach the target

**At PO, PSO Level:**

• POs and PSOs are achieved through formal courses and other co-curricular and extra-curricular activities

• Target levels of attainment of POs and PSOs are set; Program is delivered; actual attainment of POs and PSOs is determined; The loop is closed either by increasing the target level for the next cycle of the program or By planning suitable improvements in all the relevant activities to increase the actual attainment

• “Closing the loop” must be carried out, in a similar manner, at the level of PEOs also!

• This concept applies even at higher levels of Mission and Vision though the time frames involved are usually much larger!

• Thus Mission is revisited typically once in 5 to 6 years.

• It is much rarer to revisit the Vision in less than about 7 to 10 years!

• This process view of Quality is implicitly central to Accreditation

**Taxonomy of Teaching, Learning and Assessment**

**Dimensions of Learning**

• Cognitive
  – Cognitive Processes
  – Knowledge Categories

• Affective (Emotion)

• Psychomotor

**Anderson/Bloom’s Taxonomy**

• Knowledge/Remember

• Understand

• Apply

• Analyze

• Evaluate

• Create
1. Knowledge/Remember

- Remembering involves retrieving relevant knowledge from long-term memory
- The relevant knowledge may be factual, conceptual, procedural, or some combination of these
- Remembering knowledge is essential for meaningful learning and problem solving as that knowledge is used in more complex tasks
- Action verbs: Recognize, recall, list, mention, state, draw, label, define, name, describe, prove a theorem etc.

2. Understand

- We are said to understand when we are able to construct meaning from instructional messages
- Instructional messages can be verbal, pictorial/graphic or symbolic
- Instructional messages are received during lectures, demonstrations, field trips, performances, or simulations, in books or on computer monitors

Action verbs for ‘Understanding’

- Interpret: translate, paraphrase, represent and clarify
- Exemplify: Illustrate and instantiate
- Classify: Categorize and subsume
- Summarize: Generalize and abstract
- Infer: Find a pattern Compare: Contrast, match, and map Explain: Construct a model

Apply

- Using procedures to perform exercises or solve problems
- Closely linked with procedural knowledge

Action verbs:

- Execute/Implement: determine, calculate, compute, estimate, solve, draw, relate, modify, etc.

Analyze

- Involves breaking material into its constituent parts and determining how the parts are related to one another and to an overall structure
- Differentiate: Discriminate, differentiate, focus and select (Distinguishing relevant parts or important parts from unimportant parts of presented material)
- Organize: Structure, integrate, find coherence, outline, and parse (Determine how elements fit or function within a structure)
- Attribute: Deconstruct (Determine a point of view, bias, values, or intent underlying presented material)
Analysis in Diploma programs

- Use of the verb ‘analyze’ in diploma is bit tricky
- It is not easy to design any questions in this category in limited time written examinations
- Analyse activities can be included in assignments related to case studies, projects, term papers and field studies

Evaluate

- Make judgments based on criteria and standards
- Criteria used include quality, effectiveness, efficiency and consistency
  - The standards may be either quantitative or qualitative

Evaluate: Action Verbs

- Check: Test, detect, monitor, coordinate
- Critique: Judge (Accuracy, adequacy, appropriateness, clarity, cohesiveness, completeness, consistency, correctness, credibility, organization, reasonableness, reasoning, relationships, reliability, significance, standards, usefulness, validity, values, worth, criteria, standards, and procedures)

Create

- Involves putting elements together to form a coherent or functional whole
- While it includes objectives that call for unique production, also refers to objectives calling for production that students can and will do

Action verbs:

- Generate: Classify systems, concepts, models, explanations, generalizations, hypotheses, predictions, principles, problems, questions, stories, theories
- Plan (design)
- Produce

Affective Domain

- Difficult to structure
- Catch all: self-concept, motivation, interests, attitudes, beliefs, values, self-esteem, morality, ego development, feelings, need achievement, locus of control, curiosity, creativity, independence, mental health, personal growth, group dynamics, mental imagery and personality

Psychomotor domain

- It includes physical movement, coordination, and use of the motor-skill areas.
- Development of these skills requires practice and is measured in terms of speed, precision, distance, procedures, or techniques in execution.

Relation between the three domains
Cognitive, affective and psychomotor activities are not independent of one another. Instruction needs to pay attention to these dependencies.

Attainment of Course Outcomes

Outcomes of Learning


Structure of a CO Statement

- **Action**: Represents a cognitive/ affective/ psychomotor activity the learner should perform. An action is indicated by an action verb representing the concerned cognitive process.
- **Knowledge**: Represents the specific knowledge from any one or more of the eight knowledge categories.
- **Conditions**: represents the process the learner is expected to follow or the conditions under which to perform the action (This is an optional element of CO).
- **Criteria**: represent the parameters that characterize the acceptability levels of performing the action (This is an optional element of CO).

Course Outcomes

- The number of course outcomes is about 6 for theory course, 4-credit course has about 52 classroom sessions.
- The number of course outcomes is varying from 4 to 6 for practical/Work shop course, 3-credit Practical course has about 78 sessions (26 tutorial sessions+52 Practical sessions).
- It is desirable to associate an approximate number of Units of teaching with each Course Outcome.
Example: Sample Course Outcomes

Course: Strength of materials  
Credits: 4:0:0

<table>
<thead>
<tr>
<th>Course Outcome</th>
<th>Cognitive Level</th>
<th>Class Sessions</th>
<th>Lab Sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>U</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Understand and distinguish the behavior of simple load carrying members subjected to an axial, shear and thermal Loading.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO2</td>
<td>U</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Interpret the Variation of moment of inertia for different Mechanical Engineering Sections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO3</td>
<td>App</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Draw and Compare the shear force and bending moment diagram on beams under varying load conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO4</td>
<td>Ap</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Assess Bending and shear stresses in beams subjected to different loadings for different machine parts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO5</td>
<td>Ap</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Differentiate in strain energy stored in a body when the load is suddenly applied and gradually applied</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO6</td>
<td>Ap</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Design simple power transmission shaft for professional engineering solutions in societal and environmental contexts</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Hours of instruction: 52

Attainment of COs of the Course

- Attainment of COs can be measured directly and indirectly
  - Direct attainment of COs can be determined from the performances of students in all the relevant assessment instruments.
  - Indirect attainment of COs can be determined from the course exit surveys.
  - The exit survey form should permit receiving feedback from students on individual COs.
  - Computation of indirect attainment of COs may turn out to be complex; the percentage weightage to indirect attainment can be kept at a low percentage, say 10%.

Direct CO attainment

- Semester End Examination (SEE) is conducted and evaluated by the SBTE
  - The Department will have access only to the marks obtained by each student in the course
  - As the information on performance in SEE on each student in individual COs is not available, the Institution/Department has to take that attainment (percentage marks) for all COs of the course is the same.
  - The proportional weightages of CIE: SEE may be 40:60, 25:75 or 30:70.
  - The number of assessment instruments used for CIE is decided by the instructor and/or Department and sometimes by the affiliating University
Assessment Pattern

Example: Sample Assessment Pattern for all the concerned CIE Instruments (assuming 40% weightage for CIE) indicated.

<table>
<thead>
<tr>
<th>CL</th>
<th>A1 5</th>
<th>T1 20</th>
<th>T2 20</th>
<th>T3 20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remember</td>
<td>0</td>
<td>20%</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>Understand</td>
<td>0</td>
<td>60%</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Apply</td>
<td>100%</td>
<td>20%</td>
<td>40%</td>
<td>45%</td>
</tr>
<tr>
<td>Analyze</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Evaluate</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Create</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Class average in CIE

<table>
<thead>
<tr>
<th>CO</th>
<th>A1 5 Cl. Ave</th>
<th>T1 20 Cl. Ave</th>
<th>T2 20 Cl. Ave</th>
<th>T3 20 Cl. Ave</th>
<th>CIE Class Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CO1</td>
<td>0</td>
<td>5.4/10</td>
<td>0</td>
<td>0</td>
<td>5.4/10 = 54%</td>
</tr>
<tr>
<td>CO2</td>
<td>1.5/2</td>
<td>4.8/10</td>
<td>0</td>
<td>0</td>
<td>6.3/12 = 52.5%</td>
</tr>
<tr>
<td>CO3</td>
<td>0.7/1</td>
<td>0</td>
<td>7.4/10</td>
<td>0</td>
<td>8.1/11 = 73.6%</td>
</tr>
<tr>
<td>CO4</td>
<td>1.7/2</td>
<td>0</td>
<td>3.8/10</td>
<td>2.9/5</td>
<td>8.4/17 = 49.4%</td>
</tr>
<tr>
<td>CO5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2.9/5</td>
<td>2.9/5 = 58%</td>
</tr>
<tr>
<td>CO6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7.4/10</td>
<td>7.4/10 = 74%</td>
</tr>
</tbody>
</table>

Setting CO Attainment Targets

- There can be several methods, one which suited for the diploma program

Example:

- Same target is identified for all the COs of a course. For example: the target can be “the class average marks ≥ 60 marks”

Setting targets for Course Outcomes

- Targets are set for each CO of a course separately.

<table>
<thead>
<tr>
<th>CO</th>
<th>Target (Class Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>60%</td>
</tr>
<tr>
<td>CO2</td>
<td>60%</td>
</tr>
<tr>
<td>CO3</td>
<td>60%</td>
</tr>
<tr>
<td>CO4</td>
<td>60%</td>
</tr>
<tr>
<td>CO5</td>
<td>60%</td>
</tr>
<tr>
<td>CO6</td>
<td>60%</td>
</tr>
</tbody>
</table>
It does not directly indicate the distribution of performance among the students.
It has the advantage of finding out the difficulty of specific COs
There are several ways setting targets for Course Outcomes

**Computation of CO Direct Attainment in the course Strength of Materials**

**Attainment of CO in a course Strength of materials = Wt. of CIE x Attainment of CO as percentage in CIE + Wt. of SEE x Class Average Marks Percentage in SEE (You have find out as 48Marks Class average in SEE)**

<table>
<thead>
<tr>
<th>CO</th>
<th>CIE 25 Cl. Ave</th>
<th>SEE 100 Cl. Ave</th>
<th>Direct CO Attainment 0.40 CIE Cl. Ave +0.60 SEE Cl. Ave</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>5.4/10 = 54%</td>
<td>48%</td>
<td>50.4%</td>
</tr>
<tr>
<td>CO2</td>
<td>6.3/12 = 52.5%</td>
<td>48%</td>
<td>49.8%</td>
</tr>
<tr>
<td>CO3</td>
<td>8.1/11 = 73.6%</td>
<td>48%</td>
<td>58.24%</td>
</tr>
<tr>
<td>CO4</td>
<td>8.4/17 = 49.4%</td>
<td>48%</td>
<td>48.56%</td>
</tr>
<tr>
<td>CO5</td>
<td>2.9/5 = 58%</td>
<td>48%</td>
<td>52%</td>
</tr>
<tr>
<td>CO6</td>
<td>7.4/10 = 74%</td>
<td>48%</td>
<td>58.4%</td>
</tr>
</tbody>
</table>

**CO Attainment and Attainment Gap**

**Computation of Attainment of COs in Strength of Materials**

<table>
<thead>
<tr>
<th>CO</th>
<th>Direct CO Attainment 0.40 CIE Cl. Ave +0.60 SEE Cl. Ave</th>
<th>CO Attainment</th>
<th>CO Target</th>
<th>CO Attainment Gap %ge</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>50.4%</td>
<td>50.4%</td>
<td>60%</td>
<td>9.6%</td>
</tr>
<tr>
<td>CO2</td>
<td>49.8%</td>
<td>49.8%</td>
<td>60%</td>
<td>10.2%</td>
</tr>
<tr>
<td>CO3</td>
<td>58.24%</td>
<td>58.24%</td>
<td>60%</td>
<td>1.76%</td>
</tr>
<tr>
<td>CO4</td>
<td>48.56%</td>
<td>48.56%</td>
<td>60%</td>
<td>11.44%</td>
</tr>
<tr>
<td>CO5</td>
<td>52%</td>
<td>52%</td>
<td>60%</td>
<td>8.00%</td>
</tr>
<tr>
<td>CO6</td>
<td>58.4%</td>
<td>58.4%</td>
<td>60%</td>
<td>1.6%</td>
</tr>
</tbody>
</table>
## Closure of the Quality Loop

<table>
<thead>
<tr>
<th></th>
<th>Target</th>
<th>CO Attainment gap</th>
<th>Action proposed to bridge the gap</th>
<th>Modification of target where achieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>60%</td>
<td>9.6%</td>
<td>Suitable action to be initiated to fill the gap at the course co coordinator level and the same has to be documented</td>
<td>If the target achieved, Higher target may be set</td>
</tr>
<tr>
<td>CO2</td>
<td>60%</td>
<td>10.2%</td>
<td>Suitable action to be initiated to fill the gap at the course co coordinator level and the same has to be documented.</td>
<td>Same as above</td>
</tr>
<tr>
<td>CO3</td>
<td>60%</td>
<td>1.76%</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
<tr>
<td>CO4</td>
<td>60%</td>
<td>11.44%</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
<tr>
<td>CO5</td>
<td>60%</td>
<td>8.00%</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
<tr>
<td>CO6</td>
<td>60%</td>
<td>1.66%</td>
<td>Same as above</td>
<td>Same as above</td>
</tr>
</tbody>
</table>

### COs-POs and PSOs
- POs and PSOs are attained through program specific Core Courses.
- Each Course addresses a sub-set of POs and PSOs to varying levels (strengths) (1, 2 or 3). Sometimes we determine the POs/PSOs the courses address.
- Sometimes we may appropriately determine the POs/PSOs a Course should address and the COs have to be written to meet the identified POs/PSOs.

### Strength of CO-PO/PSO Mapping
- Attainment of a PO/PSO depends both on the attainment levels of associated COs and the strength to which it is mapped.
- It is necessary to determine the level (mapping strength) at which a particular PO/PSO is addressed by the course.
  - Strength of mapping is defined at three levels: Low (1), Medium (2) and Strong (3)
  - Several methods can be worked to determine the strength of a PO/PSO, but Implementing them across a few hundred courses can become a burden

### Strength of CO-PO/PSO Mapping Sample
- A simple method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.
- If >40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3
- If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
- If 5 to 25% of classroom sessions addressing a particular PO, it is considered
that PO is addressed at Level 1
- If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed

Example: Sample CO-PO/PSO Mappings

<table>
<thead>
<tr>
<th>Course: Strength of materials</th>
<th>Credits: 4:0:0</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course Outcome</strong></td>
<td><strong>POs</strong></td>
</tr>
<tr>
<td>CO1</td>
<td>Understand and distinguish the behavior of simple load carrying members subjected to an axial, shear and thermal Loading.</td>
</tr>
<tr>
<td>CO2</td>
<td>Interpret the Variation of moment of inertia for different Mechanical Engineering Sections</td>
</tr>
<tr>
<td>CO3</td>
<td>Draw and Compare the shear force and bending moment diagram on beams under varying load conditions.</td>
</tr>
<tr>
<td>CO4</td>
<td>Assess Bending and shear stresses in beams subjected to different loadings for different machine parts</td>
</tr>
<tr>
<td>CO5</td>
<td>Differentiate in strain energy stored in a body when the load is suddenly applied and gradually applied</td>
</tr>
<tr>
<td>CO6</td>
<td>Design simple power transmission shaft for professional engineering solutions in societal and environmental contexts</td>
</tr>
<tr>
<td><strong>Total Hours of instruction</strong></td>
<td>52</td>
</tr>
</tbody>
</table>

Course – PO/PSO Mapping Strength

<table>
<thead>
<tr>
<th>PO/PSO Mapping Strength</th>
<th>34 of 52 (65%) sessions are devoted to PO1</th>
<th>Mapping strength is 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>34 of 52 (65%) sessions are devoted to PO2</td>
<td>Mapping strength is 3</td>
</tr>
<tr>
<td></td>
<td>34 of 52 (65%) sessions are devoted to PO3</td>
<td>Mapping strength is 3</td>
</tr>
<tr>
<td></td>
<td>18 of 52 (35%) sessions are devoted to PO5</td>
<td>Mapping strength is 2</td>
</tr>
<tr>
<td></td>
<td>6 of 52 (11.53%) sessions are devoted to P6</td>
<td>Mapping strength is 1</td>
</tr>
<tr>
<td></td>
<td>52 of 52 (100%) Sessions are devoted to PSO1</td>
<td>Mapping strength is 3</td>
</tr>
</tbody>
</table>
Course—POs/PSO Mapping

- POs and PSOs are addressed through core courses, projects etc.
- A course/project etc. meets a subset of POs and PSOs to different strengths (1, 2 or 3)

Sample Course addresses a subset of POs and PSOs to varying strengths

<table>
<thead>
<tr>
<th>Course</th>
<th>PO1</th>
<th>PO2</th>
<th>PO3</th>
<th>PO4</th>
<th>PO5</th>
<th>PO6</th>
<th>PO7</th>
<th>PO8</th>
<th>PO9</th>
<th>PO10</th>
<th>PSO1</th>
<th>PSO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of material</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

CO Attainment and POs/PSOs

- Not every CO of the course will address every PO or PSO addressed by the course

<table>
<thead>
<tr>
<th>CO</th>
<th>POs</th>
<th>CO Attainment %ge</th>
</tr>
</thead>
<tbody>
<tr>
<td>CO1</td>
<td>PO1, PO2, PO3, PSO1</td>
<td>50.4</td>
</tr>
<tr>
<td>CO2</td>
<td>PO1, PO2, PO3, PSO1</td>
<td>49.8</td>
</tr>
<tr>
<td>CO3</td>
<td>PO1, PO2, PO3</td>
<td>58.24</td>
</tr>
<tr>
<td>CO4</td>
<td>PO1, PO2, PO5, PSO1</td>
<td>48.50</td>
</tr>
<tr>
<td>CO5</td>
<td>PO1, PO2, PO5, PSO1</td>
<td>52</td>
</tr>
<tr>
<td>CO6</td>
<td>PO2, PO5, PO6, PSO1</td>
<td>58.40</td>
</tr>
</tbody>
</table>

PO and PSO Attainment

PO and PSO attainments are normalized to 1, that is, if a PO is to be addressed at the level of 3 and attainments of CO associated with that PO is 100%,

- PO1 Attainment in Strength of material course = \(\frac{3}{3} \times \text{Ave}(0.504 + 0.498 + 0.5824 + 0.4850 + 0.520) = 0.51\)
- PO2 Attainment in Strength of material course = \(\frac{3}{3} \times \text{Ave}(0.504 + 0.498 + 0.5824 + 0.4850 + 0.520) = 0.51\)
- PO3 Attainment in Strength of material course = \(\frac{3}{3} \times \text{Ave}(0.504 + 0.498 + 0.5824) = 0.52\)
- PO5 Attainment in Strength of material course = \(\frac{2}{3} \times \text{Ave}(0.48 + 0.52) = 0.33\)
- PO6 Attainment in Strength of material course = \(\frac{1}{3} \times \text{Ave}(0.5840) = 0.19\)
- PSO1 Attainment in Strength of material course = \(\frac{3}{3} \times \text{Ave}(0.504 + 0.498 + 0.5824 + 0.4850 + 0.520 + 0.5840) = 0.528\)

- These computations are approximate but indicative PO/PSO attainment

### Attainment of POs and PSOs

<table>
<thead>
<tr>
<th>Course</th>
<th>PO1</th>
<th>PO2</th>
<th>PO3</th>
<th>PO4</th>
<th>PO5</th>
<th>PO6</th>
<th>PO7</th>
<th>PO8</th>
<th>PO9</th>
<th>PO10</th>
<th>PSO1</th>
<th>PSO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength of Materials</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Attainment</td>
<td>0.51</td>
<td>0.51</td>
<td>0.52</td>
<td>0</td>
<td>0.33</td>
<td>0.19</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.528</td>
<td>0</td>
</tr>
</tbody>
</table>
Use of Surveys
A Recap

- Evaluation of attainment of POs and PSOs is based on Direct and Indirect Methods!
  - **Direct Methods:**
    - The performance of students in different assessments (CIE, SBTE exams) → Evaluation of attainment of COs → Evaluation of attainment of POs and PSOs based on the mappings from COs to POs and PSOs
  - **Indirect Methods:**
    - Program Exit Surveys, Alumni Surveys, and Employer Surveys are used to evaluate the attainment of POs and PSOs

**Attainment of POs and PSOs**
- Evaluations of attainment of POs and PSOs based on Direct and Indirect Methods are Combined to arrive at the **Final Evaluation**.

Example: PO4 (Engineering Tools): Evaluation Based on Direct Methods: Level 2
- Based on Indirect Methods (3 Surveys): 3.67
- Combined Evaluation:
  - \((w_1 \times 2) + (w_2 \times 3.67)\)
  - The weights \(w_1\) and \(w_2\) need to be decided by the Institute.
    - Typical values can be 0.8 and 0.2 respectively!
    - With these values, the combined value is: \(1.6 + 0.73 = 2.33\)
      (Between Level 2 and Level 3)

**Attainment of PEOs**
- Evaluation of attainment of PEOs is generally based only on **Indirect Methods**!

**Indirect Methods:**
- Alumni Surveys, and Employer Surveys are generally used to evaluate the attainment of PEOs.
- Thus the data from Surveys is used for evaluating the attainment of POs and PSOs as well as PEOs.
- The actual responses useful for these two different purposes are not identical!

**The different surveys**
- **1. Program Exit survey**

**Program Exit Survey -1**
Personal Details:
- Name
- Duration at the Institute (From...To....)
- Program of Study
- Rural / Urban Background
- Placement Status
- Rank in DCET
(What follows are sample questions only)
On a scale of 1 (worst) to 5 (best) where relevant (other ranges are possible, of Course)

**Program Exit Survey - 2**
- Level of comfort in working in groups
- Level of confidence in formulating imprecise real-world problems as formal engineering problems
- Opportunities provided for acquiring leadership skills
- Communication skills and Interpersonal skills acquired during your stay in the Institute
- Nature of final-year project: (Implementation, Fabrication, Purely theoretical, …)

**Program Exit Survey - 3**
- Confidence in applying concepts of Mathematics and Computing in solving problems
- Usefulness of professional core courses during job interviews
- Availability and adequacy of modern tools in the laboratories
- Opportunities provided for working in multi-disciplinary project teams
- Usefulness of Mathematics, Professional core and electives in competitive exams like DCET conducted by Karnataka examination Authority etc

**Program Exit Survey - 4**
- Level of understanding of the need to factor in sustainability, ethical, health, public safety, and environmental issues in the solutions developed by you.
- Opportunities for working on real-life problems during the program
- Extent of opportunities available for applying management principles in academic activities undertaken by you during the program
- Extent of usefulness of Basic Science and Engineering Science courses in problem solving

**Program Exit Survey - 5**
- New tools (outside the formal curriculum) learnt
- Extent of acquisition of critical analysis competency in solving broadly defined problems
- **Open suggestions for improving the quality of the program**
## Alumni Survey - 1

**Personal Details:**
- Name
- Duration at the Institute (From...To....)
- Program of Study
- Rural / Urban Background
- ...
- ...

## Alumni Survey - 2

On a scale of 1 (worst) to 5 (best) where relevant (other ranges are possible!) (These are sample questions only):
- Current Position; Organization
- Initial Position; Organization
- Promotions, Organizations in which you worked along with period in each organization, Rewards, Awards, projects handled etc
- Publication of Research Papers, White Papers etc.
- Level of comfort in working in groups – initially and at present

## Alumni Survey - 3

- Enhancement of qualifications (higher degrees, certificate courses etc), knowledge, skills etc. (workshops, training programs etc)
- Level of confidence and success in formulating imprecise real-world problems as formal engineering problems – initially, now
- Success in leadership roles (preparedness at program exit, success in on-site trainings etc.)
- Communication skills (level of acquisition during the program, usefulness in the job, additional acquisitions during work etc.)

## Alumni Survey - 4

- Level of Interpersonal skills
- Ease with modern tools
- Learning curve with new tools
- New tools learnt during job

## Alumni Survey - 5

- Your assessment of need for professional ethics in work
- Comfort level with application of concepts Mathematics, Engineering,... in solving real Problems
- Usefulness of professional core courses in your professional practice.
- Relevance of professional electives to your profession so far

## Alumni Survey - 6

- Ability to factor in sustainability, ethical, health, public safety, and environmental issues in the solutions developed by you.
- Extent of application of project management principles in the projects handled/being
3. Employer Survey

Employer Survey - 1
Organization Details: ...
Employee Details:
- Name
- Current Position
- Date of Joining the Organization
- Position at the time of joining ...

Employer Survey - 2
With respect to our Graduates, please indicate Your assessment on the following:
- Ability to work well in groups
- Publication of technical Papers etc.
- Level of confidence and success in formulating imprecise real-world problems as formal engineering problems
- Success in leadership roles
- Communication skills

Employer Survey - 3
- Interpersonal skills
- Ability to learn and use new and modern tools
- Ethical Behavior
- Ability to factor in sustainability, ethical, health, public safety, and environmental issues in the solutions developed

Employer Survey - 4
- Extent of application of Project management principles in the projects handled/being handled by him/her
- Extent of critical analysis competency exhibited in solving complex engineering problems
- Enthusiasm in participating your CSR activities
- Any specific negative traits observed
- Open suggestions for improving the quality of our diplomats

Using the Survey Data - 1
Using the survey data for evaluating the attainment of a PO or PSO or PEO is same: Example: PO 4 (Engineering Tools)
1. Identify the responses that are relevant to this PO from each survey. Example:
"Rate the Ability to learn and use new engineering tools" from Employer Survey
"New tools (outside the formal curriculum) learnt" from Program Exit Survey and so on ...

2. With data from only one type of survey, find the average rating for one relevant question.
Example (cont'd): Using Program Exit Survey

50 people answered the example question given earlier; 6 rated 1 (low); 35 rated 4; and 9 rated 5. So, the average is: 3.82

3. Repeat for all other relevant questions from the same survey
Example (cont'd): Assume there are 3 other relevant questions and their average ratings are 3.91, 4.15, and 4.88

4. The final average rating from this survey is 4.19

5. Set target levels of attainment

6. Example: Average value from a Survey is

\[
\begin{align*}
&< 3 & \rightarrow & \text{Level 1} \\
&\geq 3 \text{ and } < 4 & \rightarrow & \text{Level 2} \\
&\geq 4 & \rightarrow & \text{Level 3}
\end{align*}
\]

(Other ranges are possible; discuss in department and record the justifications for setting the target levels the way they are set)

7. So, Attainment of PO 4 from the survey under consideration is:

\[
4.19 \rightarrow \text{Level 3}
\]

8. Repeat with other types of Surveys if relevant.

9. Compute the grand average as the Final Value of Attainment of this PO Example: Attainment of PO5

From Program Exit Survey: Level 3
From Alumni Survey: Level 3
From Employer Survey: Level 2
Final Value: \( (3 + 3 + 2) / 3 = 2.67 \)

10. Repeat this for each PO, PSO, and PEO Surveys useful for Pos and PSOs:

   **Program Exit Survey, Alumni Survey, Employer Survey**
   Surveys useful for PEOs: Alumni Survey, Employer Survey

   Alternative approach for combining results from different surveys:
   
   o Previous approach: Result of each survey was immediately quantized in to one of the 3 levels
   
   o Alternatively: We can retain the average value computed for each survey (without quantizing); find the grand average value from all the relevant surveys; and then quantize!

   Example: Attainment of PO4

   Values from Program Exit Survey=4.19
   Alumni Survey=4.32
   Employer Survey=3.79

28
Grand Average = (4.19 + 4.32 + 3.79) / 3 = 4.1 \rightarrow \text{Level 3}

**Using the Survey Data**

**Exercise**

**Course Surveys**
- Course Surveys: Mid-Course ; Course-End
- Written / Electronic; Signed / Anonymous
- Mid-Course Survey:
  - Typically, about a 2 month after the start of the course
  - Useful for corrections in course delivery
- Course-End Survey:
  - At the end of the course
  - Useful for "closing the quality loop"
  - May be used in computing course attainment, though the manual does not explicitly recognize this approach!

**Mid-Course Survey**
- Helpful for mid-course corrections
- Typical Questions to be answered by all the students
  (on a scale of 1 to 5 – most negative to most positive response):
  - COS are clear
  - Pace of coverage is comfortable
  - Instruction is aligned to COs
  - Questions are encouraged
  - Good access to learning resources
  - Examples are worked out well
  - Good communication skills (of Faculty)
  - Supportive attitude (of Faculty) ...

**Course-End Survey**
- Helpful for: “closing the loop”
- Can be used in computing attainments of COs
- Questions generally cover:
  - Course Management
  - Learning Environment
  - Attainment of COs
  - Instructor characteristics ...
- Typical Questions to be answered by all the students
  (on a scale of 1 to 5 – most negative to most positive response):
  - COs were clear
  - Instructional activities helped in attaining COs
– Pace of coverage was comfortable
  o Questions were encouraged
  o Had good access to learning resources
  o Examples were worked out well and also useful for Examinations
  o Instructor had good communication skills
  o Instructor’s attitude was supportive
  o How much did you learn?
  o Any specific CO(s) that you are not confident of? (Tick them in the list below)
  o The course helped you in improving your problem solving abilities … … …

Using the Survey Data
  o Find the average rating for one relevant question.

Example: For a question related to CO3, of the 65 answers:

6 rated 1 (low); 54 rated 4; and 5 rated 5. So, the average is :\( \frac{6\times1+54\times4+5\times5}{65} = 3.8 \)
It corresponds to (as per our own settings)
The above can be normalized as :\( \frac{6\times1+54\times4+5\times5}{65\times5} = 0.76 \) (76%)
i.e Level 2 (medium)!
  o Repeat for all other relevant questions
  o The final attainment of that CO is the average of all these values
  o This process is repeated for all the COs

Combining Direct & Indirect Evaluations
  o The attainment levels obtained by direct methods and course-end survey can be combined to get the final level of attainment.
  o The relative weights need to be decided upon. (90% and 10% to 80% and 20%?)
  o Example: CO3
  – Direct method (SBTE Examination + Internal Assessment): 1.9
  – Based on Course-End Survey: 2
  – Final Value: \( (0.9 \times 1.9) + (0.1 \times 2) = 1.91 \)
Rubrics

Rubrics - Introduction
  o What?
    – A Scoring Tool useful for subjective assessments
    – A more systematic way of evaluating performance of students on tasks such as Seminars, Projects, Term Papers ...
  o Must be shared up front with students
    – Enables students “do” what is expected
    – Makes the process more transparent
    – Allows self-evaluation by students
  o Components:
    – Attributes
    – Descriptors
    – Scores

Rubrics - Attributes
  o The criteria by which the performance is to be evaluated.
  o Are derived from the planned outcomes

Example:
For a Technical Seminar on workshop technology, some of the attributes can be:
  – Verbal Skills
  – Body language
  – Technical Content

  o The more clearly articulated the attributes, the better will be the usefulness of the rubrics
  o Your comments on the above list?
  o Attributes can be organized hierarchically (attributes, sub-attributes)

Example:
  – Verbal Communication
    o Grammatically correct sentences
    o Semantically clear sentences
    o “Filler words”
    o Voice Modulation
    o ...
  – Non-Verbal Communication
    o Eye-Contact
    o Posture
    o ...

Descriptors
For each (sub) Attribute:
  • Provide descriptions of performance at different levels of “quality”
• The levels can be 3 to 5 (typical)
• Number of Levels
  – Too small → Not much discrimination
  – Too large → Taxing for all
  – No hard and fast rule
• Avoid stand-alone vague descriptors
  o (Excellent, Creative, Weak,...)
• Descriptors need to be as specific as possible
• Good descriptors
  – More objective evaluation
  – More helpful for students in preparing well

Example: 3 Levels for “References Section in a Term Paper”
  – GOOD (Highest Level): Latest references (up to the previous year) are included;
    References are cited as per the specified standard (say IEEE Standard);
    References cited cover the subject matter comprehensively.
  – AVERAGE (Intermediate Level):...
  – POOR (Low Level): Only old (...) references; Many of the References are not cited as
    per the specified standard; References cited poorly cover the subject matter.

Scores
For each level of descriptor of each (sub)
  Attribute: o Assign scores
  o Can be a single value or a range of values
  o Avoid a range that is too wide

Example: For the descriptors given earlier –
Good Level:  8 to 10
Average Level: 4 to 7
Low Level: 0 to 3

Rubrics – Template (partly filled)
  o Seminar Presentation:


<table>
<thead>
<tr>
<th>Criteria</th>
<th>Descriptors with Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Communication Aids</td>
<td>Communication aids enhance presentation. The font on the visuals is readable. Information is represented and organized to maximize audience comprehension. Details are minimized so that main points stand out. (8-10)</td>
</tr>
<tr>
<td></td>
<td>Communication aids contribute to the quality of the presentation. Font size is mostly readable. Appropriate information is included. Some times main points are obscured by excessive details (4-7)</td>
</tr>
<tr>
<td></td>
<td>Communication aids marginally contribute to the quality of the presentation. Font size is mostly readable. Information included is often unimportant Some times main points are obscured by excessive details (2-3)</td>
</tr>
<tr>
<td></td>
<td>Communication aids are poorly used. Font size is too small to read. Too much information is included. Details or some unimportant information is highlighted, and may confuse the audience (0-1)</td>
</tr>
</tbody>
</table>

**Program Curriculum, T-L and Other Processes; Highly Doable and Highly Useful**

**Curricular Gaps**

**Process (One possible approach):**

- HoD, Faculty, Alumni, Current Final-Year Students, Industry, University, Faculty from other Academic Institutes,...
  - Map all the COs (Core Subjects only) to POs and PSOs
  - If any POs / PSOs are addressed in common by all the electives, record them
  - Examine the strength of mappings to the POs and PSOs
  - **Identify weakly addressed POs and PSOs!**
    - Record the MoM
    - Brainstorm the additional content required to address the identified curricular gaps and record the final decisions
    - Deliver the content beyond the curriculum as planned
    - Treat this as you would treat any other course! (Measure attainments, close the quality loop etc)

**Example:**

- Analysis of mapping of all courses to POs and PSOs reveals that one of the PSOs that is not being addressed adequately by the diploma Curriculum is "Additive manufacturing"
  - Planned additional content:
    - An additional 4-Hour Module in the work shop technology Course on Additive manufacturing; Assessment is by Group Discussion of a Case Study
    - An additional 3-Day Hands-On Training Program on Additive manufacturing delivered in Collaboration with Industry; Assessment is by a Lab

**Processes followed to improve the quality of Teaching – Learning:**
Course plan– (fortnightly?) Review – Recorded corrective action plans where necessary – Course-end review

- Activity-based learning
- Tool-supported instruction
- Tech-support for weak students (including LMS, Discussion forums, Google Groups,...)
- Challenges, learning resource support, and rewards (not in terms of class grades!?) for bright students
- Open-ended experiments in the laboratories and support for conducting them

- Rubrics for continuous evaluation in the laboratory
- Mid-course, end-course surveys, data analysis, recorded improvement actions, follow-up on the effectiveness of such measures
- Case-study based learning
- (Tech) Book Study Clubs and follow-up

**Quality of Internal Assessment:**
- Process to ensure quality
- Process to ensure quality of IA Papers
- Evidence of coverage of COs
- Quality of Assignments and relevance to COs

- Assessment plan – prepared, reviewed, revised, and shared up-front with students; Includes CO-Assessment Item mapping
- Academic audit of assessment instruments
- Incentives for assignments where they cannot be part of formal internal assessment

**Quality of Student Projects:**
- Process to identify and allocate projects
- Type, relevance, relation to POs and PSOs
- Process for monitoring and evaluation
- Process to assess individual and team performance
- Quality of completed projects/working prototypes
- Evidence of papers published/awards received
- Milestones for review and evaluation; recorded evidence
- Rubrics for project evaluation

**Industry-Institute Interaction:**
- Industry – supported laboratories
- Industry participation in Program Design and Course Delivery (even partial)

**Internships, Summer Training:**
- Industrial training / tours
- Impact analysis of industrial tour
- Student feedback on such initiatives
To Do for Accreditation

Discuss:

- Establish Student ISTE Chapters organize some events, and maintain full records
- Bring out a Institutional magazine covering technical literature/ news letter (Once in year)
- Faculty Performance Appraisal and Development System (FPADS) – Define, implement, and record
- Industry people Technical talks (at least 2 lecturer of 3 hrs duration of interaction per program in a semester): Organize, Record
- Record the Maintenance Process of tools used in labs of polytechnics (Preventive / Corrective / Calibration) and record data
- Establish a Industry assisted Project Laboratory (Facilities, Rules for Usage etc)
- Define Safety Procedures and display in Laboratories; Define Review process and record minutes of meeting
- Establish an Internal quality assurance Cell, define its functions, articulate the process details, and record the actions etc
- Establish a formal Proctor System, define its functions, articulate the process details, and record the actions etc
- Faculty Evaluation by Students: Process details, records, actions taken, rewards, ...
- Comprehensive Student Feedback: On Resources, Procedures, ...
- Self-Learning Facilities (other than traditional library)
- Career guidance, Training, and Placement Activities: Already exist! Record the processes, maintain records
- Records of co-curricular and extra-curricular activities
- Service Rules – Formal Document
- Recruitment and Promotional Policies – Formal Documents
- Formal budgetary planning, analysis
- ... ...

Conclusion

- Additional efforts required to attain the POs and PSOs
- Must follow the Quality Cycle
- Involve all the stake holders
- Maintain the Records
E-SAR

PART A: Institutional Information

Note: the following information to be furnished by respective Program coordinator of the institution applied for accreditation

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)

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/etc., if any:

<table>
<thead>
<tr>
<th>Name of the Institution</th>
<th>Year of Establishment</th>
<th>Programs of Study</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

Note: Add rows as required.
7. Details of all the programs being offered by the institution under consideration:

(The table is self explanatory)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Program Name</th>
<th>Year of Commencement</th>
<th>Intake Capacity</th>
<th>Increase in intake, if any</th>
<th>Year of increase</th>
<th>AICTE Approval</th>
<th>Accreditation Status*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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</table>

**Note:** Add rows as required.

*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

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

Note: The institution offering approved programs to be accredited should be filled

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Program Name</th>
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<tbody>
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<td>2.</td>
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</tbody>
</table>
9. Total number of Employees: A. Regular*Faculty and Staff:

Note: Min: Available faculty, max: sanctioned faculty should be filled, only regular permanent faculty to be taken

<table>
<thead>
<tr>
<th>Items</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
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<tbody>
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<td>Min</td>
<td>Max</td>
<td>Min</td>
</tr>
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<td>Faculty in Engineering &amp; Technology</td>
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<td>Faculty in Sciences &amp; Humanities</td>
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<td>Non-teaching staff</td>
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</table>

* 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 mean pay scales notified by the AICTE/Central Govt. and implementation as prescribed by the State Govt. In case State Govt. 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)

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

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

Note: part time lecturers/Visiting faculty who are in the rolls of the program, whose number should be filled

<table>
<thead>
<tr>
<th>Items</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
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<tr>
<td>Faculty in Engineering &amp; Technology</td>
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<tr>
<td>Faculty in Science &amp; Humanities</td>
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<td>Non-teaching staff</td>
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</tbody>
</table>

**Note:** In case Institution is running AICTE approved courses in Second shift, separate tables with the relevant heading shall be prepared.
10. Total number of students:

<table>
<thead>
<tr>
<th>Items</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of boys</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of girls</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Total no. of students</td>
<td></td>
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</tr>
</tbody>
</table>

*Note: In case 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:

i. Head of the Institution:
   
   Name:
   
   Designation:
   
   Mobile No:
   
   Email id:

ii. NBA coordinator, if designated:

   Name:
   
   Designation:
   
   Mobile No:
   
   Email id:
CRITERION 1: Vision, Mission and Program Educational Objectives

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

(Vision statement typically indicates aspirations and Mission statement states the broad approach to achieve aspirations) (Here Institute Vision and Mission statements have been asked to ensure consistency with the department Vision and Mission statements; the assessment of the Institute Vision and Mission will be done in the Criterion 8)

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

(State the Program Educational Objectives (3 to 5 statements/objectives) of the program seeking accreditation), Kindly refer the respective program curriculum document given by CDC/DTE

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 and detail the process which ensures awareness among internal and external stakeholders with effective process implementation)

(Internal Stakeholders may include Management, Governing Board Members, Directorate, Faculty, Support Staff, Students etc. and External Stakeholders may include Employers Industry, Alumni, Funding Agencies, etc.)

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)

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

<table>
<thead>
<tr>
<th>Programme Educational Objectives</th>
<th>MISSION STATEMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M1</td>
</tr>
<tr>
<td></td>
<td>M</td>
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<td>M</td>
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</tbody>
</table>

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) If there is no correlation, put "-": In this document wherever the term "Process" has been used its meaning is process formulation, notification and effective implementation.
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 curricula gaps, if any (30) (State the process details to identify gaps and mention identified curricula gaps. It will include typically relevance of curriculum, frequency and process of revision, weightages to theory-lab-tutorial and coverage of curriculum) Note: In case all POs and PSOs are being demonstrably met through Board Curriculum then 2.1.2 will not be applicable and the weightage of 2.1.1 will be 50.

2.1.2. Contents beyond the Syllabus (20)

(Provide details of the additional course/learning material/content/laboratory experiments/projects etc., arising from the gaps identified in 2.1.1. the delivery details and relevance to POs and PSOs for each of the assessment year in the format given below) Note: Please mention in detail whether the Institution has given such inputs and suggestions to the Affiliating Board regarding curricular gaps and possible addition of new content/add-on courses in the curriculum, to bridge the gap and to improve/attain certain POs & PSOs.

<table>
<thead>
<tr>
<th>CAY</th>
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<tbody>
<tr>
<td>S.No.</td>
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<thead>
<tr>
<th>CAYm2</th>
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<tr>
<td>S.No.</td>
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</table>
2.2 Teaching Learning Process (150)

2.2.1. Describe Processes followed to ensure/improve quality of Teaching & Learning (25)
(Processes may include the implementation details and effectiveness observed need to be documented)

- Adherence to academic calendar
- Improving instruction methods using pedagogical initiatives such as real world examples,
- Encouraging bright students, assisting weak students,
- Use of ICT tools in teaching, collaborative learning,
- Quality of laboratory experience with regard to conduct of experiments, recording observations, analysis of data etc.

2.2.2. Initiatives 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 higher orders of learning)

Example: The following initiatives were augmented in relation with quality assurance of semester tests and assignments that encourage and empower the students to develop skills and higher orders of learning like, Semester periodical testes were aimed at assessment of learning outcomes, Activities based assignments were given to students, Practical sessions were conducted and assessed for higher order of learning skills, The students were encouraged to take up projects based on problems faced by the industry, End semester examinations were aimed at evaluating knowledge, understanding, Analytical and problem solving skills

2.2.3. Quality of Experiments (15)
(Aim/Type of experiment, Relevance to Outcomes), Example

<table>
<thead>
<tr>
<th>Curriculum Lab Description</th>
<th>Activities</th>
<th>Lab/Workshop manuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Electrical and Electronics Engineering Lab</td>
<td>Hands on training in soldering to acquire skill in the art of Soldering, Understand the behavioral characteristics of passive components</td>
<td>CO1,2, Available</td>
</tr>
</tbody>
</table>

2.2.4. Quality of Students Projects and Report Writing (25)
(Quality of the project is measured in terms of factors including, but not limited to type (application, product, review, live Industry problems, Hardware/Software based, group size etc.), environment, safety, ethics, cost effectiveness and standards. Processes related to project identification, allotment, continuous monitoring, and evaluation including demonstration of working prototypes, Quality of Project Report and enhancing the relevance
of projects. Mention Implementation details including details of POs & PSOs addressed through the projects with justification)

Sample example: Similar table may be prepared for CAY, CAYm1, CAYm2

<table>
<thead>
<tr>
<th>Name of the student(s)</th>
<th>Projectile Areas of Specialization</th>
<th>Project Supervisor(s)</th>
<th>Contribution/achievements / research output</th>
<th>Matching with the stated pos</th>
<th>Publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanjeev Kumar Eshwara Gowda Karthik P</td>
<td>Hybrid Power generation Mechanical</td>
<td>Ramesh</td>
<td>Got third prize in state level project exhibition</td>
<td></td>
<td>Synopsys available</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Produced a 12 v electric power by using both solar and wind energy in prototype model</td>
<td>1-10</td>
<td></td>
</tr>
</tbody>
</table>

2.2.5. Industry Interaction and Industry Internship/Training (30)
(Give details of the industry involvement in the program such as industry-supported laboratories, partial delivery of appropriate courses/lectures by industry experts etc. Mention implementation details)(Give details of Industry Internship/Training support provided to the students with implementation details)

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

(Availability of ICT facilities, e-learning facilities, utilization; initiatives to ensure students learning through ICT).

(The Program needs to specify the facilities, materials and scope for self-learning, Webinars, NPTEL Podcast, MOOCs etc. and evaluate their effectiveness)

2.2.7. New Initiatives for embedding Professional Skills (15)

(Initiatives for developing specialized skill development programs including communication, professional and core employability skills to enhance employability)

2.2.8. Co-curricular & Extra Curricular Activities (10)

(The institution may specify the co-curricular and extra-curricular activities) (Quantify activities such as NCC, NSS et
CRITERION 3  Course outcomes and program outcomes

3.1. Establish the correlation between the courses and the POs & PSOs (20)

3.1.1. Course Outcomes (SAR should include course outcomes of one course from each semester of study, however, should be prepared for all courses) (05)

<table>
<thead>
<tr>
<th>Course code</th>
<th>SEM</th>
<th>Course Name</th>
<th>Course Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Course outcomes of all the courses in all semesters

<table>
<thead>
<tr>
<th>Course code</th>
<th>SEM</th>
<th>Course Name</th>
<th>Course Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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) (5)
Note: Semester-I for one course, like for six semester, one each course to be tabled in the following format

<table>
<thead>
<tr>
<th>Course Outcomes</th>
<th>PROGRAM OUTCOMES</th>
<th>PSO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1  2  3  4  5  6</td>
<td>7  8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Or Similar tables for PSO (can be prepared independently)

<table>
<thead>
<tr>
<th>Course Outcomes</th>
<th>PSO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

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

2. *Similar table is to be prepared for PSOs*

<table>
<thead>
<tr>
<th>Course code</th>
<th>SEM</th>
<th>Course Name</th>
<th>Program outcomes</th>
<th>PSO</th>
</tr>
</thead>
<tbody>
<tr>
<td>C101-6</td>
<td>1</td>
<td>All I semester courses</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>PSO1 PSO2 PSO3</td>
</tr>
<tr>
<td>C201-6</td>
<td>2</td>
<td>All II semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C301-07</td>
<td>3</td>
<td>All III semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C401-7</td>
<td>4</td>
<td>All IV semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C501-7</td>
<td>5</td>
<td>All V semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C601-7</td>
<td>6</td>
<td>All VI semester courses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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)

Note: (Examples of data collection processes may include, but are not assignments, laboratory tests, project evaluation, internally presentations, oral exams etc.)

Example: **Assessment Tools:**

**Direct assessments**
- Semester End Exams
- Continuous Internal Evaluation
- Project /Project reports
- Lab records

**Indirect assessments**
- Course End survey
- Instructor evaluation reports
- Department performance reports
- Program exit survey
- Alumni Survey
- Employers Survey

3.2.2 Record the attainment of Course Outcomes of all courses with respect to set attainment levels (30) S:Ste level  A: attainment level

Note: Programs may decide their weightages for Board exams and internal assessment with due justification.

<table>
<thead>
<tr>
<th>Course code</th>
<th>SEM</th>
<th>Course Name</th>
<th>CO attainment level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>CAY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>C101-6</td>
<td>1</td>
<td>All I semester courses</td>
<td></td>
</tr>
<tr>
<td>C201-6</td>
<td>2</td>
<td>All II semester courses</td>
<td></td>
</tr>
<tr>
<td>C301-07</td>
<td>3</td>
<td>All III semester courses</td>
<td></td>
</tr>
<tr>
<td>C401-7</td>
<td>4</td>
<td>All IV semester courses</td>
<td></td>
</tr>
<tr>
<td>C501-7</td>
<td>5</td>
<td>All V semester courses</td>
<td></td>
</tr>
<tr>
<td>C601-7</td>
<td>6</td>
<td>All VI semester courses</td>
<td></td>
</tr>
</tbody>
</table>
3.3. Attainment of Program Outcomes & Program Specific Outcomes (40)

3.3.1 Describe assessment tools and processes used for assessing the attainment of each POs and PSOs as mentioned in Annexure 1 (10)

(Describe the assessment tools and processes used to gather the data upon which the evaluation of each of the Program Outcome and Program Specific Outcome 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)

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

<table>
<thead>
<tr>
<th>SEM</th>
<th>Course Name</th>
<th>Program outcomes</th>
<th>PSO</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td>1 2 3</td>
</tr>
<tr>
<td>C101-6</td>
<td>All I semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C201-6</td>
<td>All II semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C301-07</td>
<td>All III semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C401-7</td>
<td>All IV semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C501-7</td>
<td>All V semester courses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C601-7</td>
<td>All VI semester courses</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Direct attainment level of a PO is determined by taking average across all courses addressing that PO. Fractional numbers may be used for example 1.55.

Indirect attainment level of a PO 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 C201, C302, C303, 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. From Tier II institutions perspective, 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
   PO Attainment level will be 80% of direct assessment + 20% of indirect assessment i.e. 1.8 + 0.4 = 2.2.

   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
### CRITERION 4  
**Student performance**  

#### Intake Information

<table>
<thead>
<tr>
<th>Item</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanctioned intake strength of the program (N)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(AICTE approved Intake)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of students, admitted through state level counseling(N1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(on line mode counseling entry)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students, admitted through Institute level quota(N2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Off line/Principal level admission)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students, admitted through lateral entry (N3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ITI people entry)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of students admitted in the Program (N1 + N2 + N3)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year of entry</th>
<th>N1 + N2 + N3</th>
<th>Number of students who have successfully passed without backlogs in any year of study</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I Year</td>
<td>II year</td>
</tr>
<tr>
<td>CAY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm2 (LYB) *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm3 (LYBm1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm4 (LYBm2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Year of entry</th>
<th>N1 + N2 + N3</th>
<th>Number of students who have successfully passed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I Year</td>
<td>II year</td>
</tr>
<tr>
<td>CAY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm2 (LYB) *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm3 (LYBm1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm4 (LYBm2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 4.1. Enrolment Ratio (20):

Enrolment Ratio= (N1+N2)/N

<table>
<thead>
<tr>
<th>Students enrolled at the First Year Level on average basis during the period of assessment</th>
<th>No of students (%)</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;=90% Students</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>&gt;=80% Students</td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>&gt;=70% Students</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td>&gt;=60% Students</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>&gt;=50% Students</td>
<td></td>
<td>06</td>
</tr>
<tr>
<td>&lt;50% Students</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
4.2. Success Rate in the stipulated period of the program

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

\[ SI = \frac{\text{Number of students who have passed from the program without backlog}}{\text{Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry}} \]

Average SI = Mean of success index (SI) for past three batches

Success rate without backlogs in any year of study = 40 \times \text{Average SI}

<table>
<thead>
<tr>
<th>Item</th>
<th>Latest Passed Batch</th>
<th>Latest Passed Batch Minus 1</th>
<th>Latest Passed Batch Minus 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students admitted on merit + admitted on management quota/otherwise + admitted through lateral entry ((N1 + N2 + N3))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students who have passed in the stipulated period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success index (SI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2.2 Success rate in a stipulated period (20)

\[ SI = \frac{\text{Number of students who have passed from the program in the stipulated period of course duration}}{\text{Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry}} \]

Average SI = mean of success index (SI) for past three batches

Success rate = 20 \times \text{Average SI}

<table>
<thead>
<tr>
<th>Item</th>
<th>Latest Passed Batch</th>
<th>Latest Passed Batch Minus 1</th>
<th>Latest Passed Batch Minus 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of students admitted on merit + admitted on management quota/otherwise + admitted through lateral entry ((N1 + N2 + N3))</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of students who have passed in the stipulated period</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Success index (SI)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average SI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### 4.3. Academic Performance in Final Year (15)

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

**API** = (Mean of 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 (successful students/number of students appeared in the examination) Successful students are those who passed in all the final year courses.

<table>
<thead>
<tr>
<th>Academic Performance</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of CGPA or Mean Percentage of all successful students (X)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of successful students (Y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of students appeared in the examination (Z)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( API = x \times \frac{(Y/Z)}{x} )</td>
<td>API1</td>
<td>API2</td>
<td>API3</td>
</tr>
<tr>
<td>Average API = (AP1 + AP2 + AP3)/3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 4.4. Academic Performance in Second Year (20)

**Academic Performance Level** = 2.0 * **Average API**

**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 (successful students/number of students appeared in the examination) Successful students are those who are permitted to proceed to the final year.

<table>
<thead>
<tr>
<th>Academic Performance</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of CGPA or Mean Percentage of all successful students (X)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of successful students (Y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of students appeared in the examination (Z)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( API = x \times \frac{(Y/Z)}{x} )</td>
<td>API1</td>
<td>API2</td>
<td>API3</td>
</tr>
<tr>
<td>Average API = (AP1 + AP2 + AP3)/3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.5. Academic Performance in First Year (25)

*Academic Performance Level = 2.5 * Average API*

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 Year/ 10)) x (successful students/number of students appeared in the examination)

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

<table>
<thead>
<tr>
<th>Academic Performance</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean of CGPA or Mean Percentage of all successful students (X)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of successful students (Y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total no. of students appeared in the examination (Z)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>API = x* (Y/Z)</td>
<td>API1</td>
<td>API2</td>
<td>API3</td>
</tr>
<tr>
<td>Average API = (AP1 + AP2 + AP3)/3</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.6. Placement and Higher Studies (40)

Assessment Points = 40 × (1.25X + 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: LPB: latest passed out batch

<table>
<thead>
<tr>
<th>Item</th>
<th>LPB</th>
<th>LPBm1</th>
<th>LPBm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Final Year Students (N)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of students placed in companies or Government Sector (X)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of students admitted to higher Studies (Y)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.25X + Y</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Placement Index : (1.25X + Y)/N</td>
<td></td>
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<tr>
<td>T = Average of (1.25X + Y)/N</td>
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</tr>
<tr>
<td>Assessment = 40 X T (To be limited to 40)</td>
<td></td>
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</tr>
</tbody>
</table>
4.7. Professional Activities (20)

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

(The Department shall provide relevant details)

4.7.2. Publication of technical magazines, newsletters, etc. (05)

(The Department shall list the publications mentioned earlier along with the names of the editors, Publishers, etc.)
Faculty Information

Please provide the cumulative information for three assessment years in the following table i.e. the current and previous three assessment years i.e. current year and CAY, CAYm1 and CAYm2. The data in the following table is used for evaluation in the sub-sections that follows.

### Current year (CAY)

<table>
<thead>
<tr>
<th>Name of the Faculty Member</th>
<th>Qualification, Board and Year of Graduation</th>
<th>Distribution of Teaching Load (%)</th>
<th>Academic Research</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I year</td>
<td>II year</td>
<td>III year</td>
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</tbody>
</table>

### Current year (CAYm1)

<table>
<thead>
<tr>
<th>Name of the Faculty Member</th>
<th>Qualification, Board and Year of Graduation</th>
<th>Distribution of Teaching Load (%)</th>
<th>Academic Research</th>
<th>Years of experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I year</td>
<td>II year</td>
<td>III year</td>
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</tr>
</tbody>
</table>

55
5.1. Student-Faculty Ratio (SFR) (15) + Availability of HoD (5); (20)

\[ S: F \text{ ratio} = \frac{N}{F}; F = \text{No. of faculty} = (a + b - c) \text{ for every assessment year} \]

- **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)

Note: Fractional load calculation

1. Faculty taking Science and mathematics course is having 50% of allocated load of first year civil engineering students, 60% load of first year mechanical engineering and 60% load of electrical engineering then the fractional load contribution will be 0.50 for civil engineering, 0.60 each for mechanical and electrical engineering. Similarly fractional load to be calculated for inter department/program work load distribution.

**Regular Faculty 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 mean pay scales notified by the AICTE/Central Govt. and implementation as prescribed by the State Govt. In case State Govt. prescribes lesser consolidated
salary for a particular cadre then same will be considered as reference while
counting faculty as a regular faculty.

Marks to be given proportionally from a maximum of 15 to minimum of 10 for average
SFR of 20:1 to 25:1, and zero for average SFR higher than 25:1.

HOD is to be over and above 1:20 ratio; as per AICTE guidelines. 5 marks to be awarded
for availability of HOD as per AICTE guidelines for all the assessment years, otherwise 0
marks.

<table>
<thead>
<tr>
<th>Year</th>
<th>N=No. of students = First year approved intake + 2x (first year approved intake + 20% of lateral entry),</th>
<th>Available faculty(F)</th>
<th>SFR= N/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAYm2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Average SFR for three assessment years

5.2. Faculty Qualification (20)

FQ = 2* (10x +7y)/F where x is no. of faculty with M.Tech/M.E. and y is no. of faculty with
B.Tech/B.E. 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)

Example:, The student first year AICTE approved intake as mentioned in Extension Of
Approval is 60,Latrel entry intake as 12,N=(60+(2*(60+12))= 204,Available number of
faculty:10 ,SFR= N/F= 204/10=20.4:Among them 06 are of M.E qualification, and the
remaining 04 are of B.E qualification, The faculty qualification= 2*(10*6+7*4)/10=17.60

5.3. Faculty Retention (20)

<table>
<thead>
<tr>
<th>Item</th>
<th>No of faculty retained (%)</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;90% required faculty members retained during the period assessment keeping CAYm2 as base year</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>&gt;=75% required faculty members retained during the period assessment keeping CAYm2 as base year</td>
<td></td>
<td>15</td>
</tr>
<tr>
<td>&gt;=60% required faculty members retained during the period assessment keeping CAYm2 as base year</td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>&gt;=50% required faculty members retained during the period assessment keeping CAYm2 as base year</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>&lt;50% required faculty members retained during the period assessment keeping CAYm2 as base year</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>

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

A Faculty scores maximum five points for participation: Participant in 2 to 5 days
Faculty/faculty development program: 3 Points: Participant >5 days Faculty/faculty development program: 5 points
5.5. Product development, Consultancy, Manufacturing contracts, Testing contracts (20)

A. Provide details about
   - Product development
   - Instruction materials
   - Working models/Charts/Monograms

B. Manufacturing contracts
   - List the production centre activities and the amount earned by taking manufacturing contract

C. Consultancy
   - Provide list the consultancy with project title, funding agency, Amount and duration

D. Testing contract
   - List the Testing contract as a third party inspection under taken by CCTEK sub centers of your institute and the amount earned by taking testing contract

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 faculty members of the polytechnic today have to perform a variety of tasks pertaining to diverse roles. In addition to teaching, faculty needs to keep abreast with changes in technology, and develop expertise for effective implementation of curricula. They also expected to provide services to community through CDTP activities/Industry by establishing the linkages. Another role related to the shouldering the administrative responsibilities and Cooperation with other faculty/HOD/Principal.

The assessment is based on

A well defined system instituted for all the assessment years:

1) Its implementation and effectiveness
2) Qualification up-gradation of faculty

5.7. Implementation of Career advancement Scheme (10)
(Documented evidence of the faculty sends for Post graduation, Deputed for Modular programs conducted by Industry, faculty promoted under CAS, and its implementation)
### CRITERION 6  Facilities and Technical Support

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

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Classroom</th>
<th>Carpet area</th>
<th>seating capacity</th>
<th>Availability of OHP</th>
<th>Other smart facilities if any</th>
<th>Weakly utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of the workshop</th>
<th>No of students/batch</th>
<th>Name of the Power tools/machine tool</th>
<th>Weakly Utilization</th>
<th>Areas in which students expected to have enhanced learning</th>
<th>Relevance to PO/PSO</th>
</tr>
</thead>
<tbody>
<tr>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Name of the laboratory</th>
<th>No of students/batch</th>
<th>Name of the Important equipment</th>
<th>Weakly Utilization</th>
<th>Technical man power support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Name of the Teaching staff</td>
</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>
6.4. Additional facilities created for improving the quality of learning experience in laboratories (20)

<table>
<thead>
<tr>
<th>SL No</th>
<th>Faculty name</th>
<th>Details</th>
<th>Reasons for creating facility</th>
<th>Utilization</th>
<th>Quality of learning experience</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Area in which students are expected to have enhanced student learning</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Relevance to PO/PSO</td>
</tr>
</tbody>
</table>

6.5. Laboratories: Maintenance and overall ambiance (10)

<table>
<thead>
<tr>
<th>SL No</th>
<th>Name of the laboratory</th>
<th>Name of the Important equipment</th>
<th>Log book maintained (Y/N)</th>
<th>Overhauling date</th>
<th>Maintenance schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>SL No</th>
<th>No of Computer terminals</th>
<th>Student-Computer ratio</th>
<th>Details of legal software</th>
<th>Details of Networking</th>
<th>Details of printers and Number of availability</th>
<th>Details of Scanners and Number of availability</th>
</tr>
</thead>
</table>

6.7. Language lab (10)

Mention the facilities available and their utilization
7.1. Actions taken based on the results of evaluation of each of the POs & PSOs (25)

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. Actions to be written as per table in 3.3.2.

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 (Not for CAYm1 and CAYm2)

<table>
<thead>
<tr>
<th>PO/PSO</th>
<th>Target Level</th>
<th>Attainment level</th>
<th>Observations</th>
<th>Action taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic knowledge</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Discipline knowledge</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experiments and practice</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
<td></td>
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<tr>
<td>The engineer and society</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environment and sustainability</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
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<tr>
<td>Ethics</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
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<tr>
<td>Individual and team work</td>
<td>1. N..</td>
<td>1. N..</td>
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</tr>
<tr>
<td>Communication</td>
<td>1. N..</td>
<td>1. N..</td>
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<tr>
<td>Life-long learning</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
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<tr>
<td>PSO-1</td>
<td>1. N..</td>
<td>1. N..</td>
<td></td>
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</tr>
</tbody>
</table>
7.2. Improvement in Success Index of Students without the backlog (10)

\[ SI = \frac{\text{Number of students who have passed from the program in the stipulated period of course duration}}{\text{Number of students admitted in the first year of that batch and admitted in 2nd year via lateral entry}} \]

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

<table>
<thead>
<tr>
<th>Item</th>
<th>LPB</th>
<th>LPBm1</th>
<th>LPBm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Success index (from criteria 4.2.1)</td>
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</tr>
</tbody>
</table>

7.3. Improvement in Placement and Higher Studies (10)

Assessment is based on improvement in: Placement: number, quality placement, core industry, pay packages etc. Higher studies: admissions in premier institutions

<table>
<thead>
<tr>
<th>Item</th>
<th>LPB</th>
<th>LPBm1</th>
<th>LPBm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Placement index (from criteria 4.6)</td>
<td></td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>LPB</th>
<th>LPBm1</th>
<th>LPBm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Performance (From Criteria 4.3)</td>
<td></td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Item</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic Performance (From IQAC minutes and proceedings)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>2.</td>
<td>2.</td>
</tr>
</tbody>
</table>

7.6. New Facility created in the program (10)

<table>
<thead>
<tr>
<th>Item</th>
<th>CAY</th>
<th>CAYm1</th>
<th>CAYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>New facility created @ institute/Department</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2.</td>
<td>2.</td>
<td>2.</td>
</tr>
</tbody>
</table>
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:

(The institution may report the details of the mentoring system that has been developed for the students for various purposes and also state the efficacy of such system)

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 participate; Specify the feedback analysis process; Basis of reward/ corrective measures, if any; Indices used for measuring quality of teaching & learning and 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(s) taken.

8.4. Career Guidance, Training, Placement (20)

(The institution may specify the facility, its management and its effectiveness for career guidance including counseling for higher studies, campus placement support, industry interaction for training/internship/placement, etc.)

8.5. Entrepreneurship Cell/Technology Business Incubator (5)

(The institution may describe the facility, its management entrepreneurship and incubation) (Success stories for each mentioned)
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 action plan to achieve aspirations. The statements should in lieu with the various departmental vision and mission statement of the institute.

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

- List the governing council in case of aided institution, BOG (Board of governors/Polytechnic development council if formed ,and any other academic and administrative bodies should be annexed;

- Their memberships, functions, and responsibilities

- Frequency of the meetings; and attendance therein, especially external members, in a tabular form should be annexed

- A few sample minutes of the meetings and action-taken reports should be annexed.

- The published rules including service rules, policies and procedures; year of publication and its implementation shall be listed. Also state the extent of awareness among the employees/students

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

List the names of the faculty members who are administrators/decision makers for various responsibilities. Mention details in respect of decentralization in working. Specify the mechanism and composition of

- Grievance redressal cell

- Anti Ragging Committee

- Sexual Harassment Committee.

9.1.4. Delegation of financial powers (5)

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

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

(Information on the policies, rules, processes is to be made available on web site. Provision of information in accordance with the Right to Information Act, 2005)
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:

- **CFY**: Current Financial Year – CFYm1 (Current Financial Year minus 1) CFYm2 (Current Financial Year minus 2)
- **Non recurring expenditure will include; not limited to**: Civil/Construction costs, Equipment (laboratory/workshops/others), Capital items
- **Recurring expenditure will include; not limited to**: 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

### A. CFY

<table>
<thead>
<tr>
<th>Total Income in CFY</th>
<th>Actual expenses in CFY(Till------)</th>
<th>Total No. of students in CFY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee</td>
<td>Govt Grants</td>
<td>Any other sources</td>
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</tbody>
</table>

### B. CFYm1

<table>
<thead>
<tr>
<th>Total Income in CFYm1</th>
<th>Actual expenses in CFYm1</th>
<th>Total No. of students in CFYm1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee</td>
<td>Govt Grants</td>
<td>Any other sources</td>
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<tr>
<td></td>
<td>Total Income in CFYm2</td>
<td>Actual expenses in CFYm2</td>
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<tr>
<td><strong>Fee</strong></td>
<td></td>
<td></td>
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<tr>
<td>Govt Grants</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other sources</td>
<td></td>
<td></td>
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<tr>
<td>Recurring including Salaries</td>
<td></td>
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</tr>
<tr>
<td>Non-recurring</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Projects/Any other, specify</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses per student</td>
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</tbody>
</table>

**D. CFYm3**

<table>
<thead>
<tr>
<th></th>
<th>Total Income in CFYm3</th>
<th>Actual expenses in CFYm3</th>
<th>Total No. of students in CFYm3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Fee</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Govt Grants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any other sources</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurring including Salaries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-recurring</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special Projects/Any other, specify</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expenses per student</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
### TABLE- Consolidated budget received-Expenditure in CFY, CFYm1, CFYm2, CFYm3

<table>
<thead>
<tr>
<th>Item</th>
<th>Budget in CFY</th>
<th>Actual expense in CFY (till ...)</th>
<th>Budget in CFYm1</th>
<th>Actual Expense in CFYm1</th>
<th>Budget in CFYm2</th>
<th>Actual Expense in CFYm2</th>
<th>Budget in CFYm3</th>
<th>Actual Expense in CFYm3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infrastructure Built-Up</td>
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<tr>
<td>Library</td>
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<tr>
<td>Laboratory Equipment</td>
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<td></td>
<td></td>
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<tr>
<td>Laboratory Consumables</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Teaching and non teaching staff salary</td>
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<tr>
<td>Maintenance and spares</td>
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<tr>
<td>R&amp;D</td>
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<tr>
<td>Training and travel</td>
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<td></td>
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<tr>
<td>Miscellaneous expenditure</td>
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<tr>
<td>Others/Specify</td>
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<td>Total</td>
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</tr>
</tbody>
</table>

* Items to be mentioned (Institute level)

9.2.1 Adequacy of budget allocation (4)
(The institution needs to justify that the budget allocated over the years was adequate)

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)

9.3 Program Specific Budget Allocation, Utilization (15)

Note: Total Income at Institute ear marked for specific program going for accreditation

A. CFY

<table>
<thead>
<tr>
<th>Total Income in CFY</th>
<th>Actual expenses in CFY(Till------)</th>
<th>Total No. of students in CFY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee</td>
<td>Govt Grants</td>
<td>Any other sources</td>
</tr>
</tbody>
</table>

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### B. CFYm1

<table>
<thead>
<tr>
<th>Total Income in CFYm1</th>
<th>Actual expenses in CFYm1</th>
<th>Total No. of students in CFYm1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee</td>
<td>Govt Grants</td>
<td>Any other sources</td>
</tr>
</tbody>
</table>

### C. CFYm2

<table>
<thead>
<tr>
<th>Total Income in CFYm2</th>
<th>Actual expenses in CFYm2</th>
<th>Total No. of students in CFYm2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee</td>
<td>Govt Grants</td>
<td>Any other sources</td>
</tr>
</tbody>
</table>

### D. CFYm3

<table>
<thead>
<tr>
<th>Total Income in CFYm3</th>
<th>Actual expenses in CFYm3</th>
<th>Total No. of students in CFYm3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fee</td>
<td>Govt Grants</td>
<td>Any other sources</td>
</tr>
</tbody>
</table>
## TABLE-Consolidated Program specific budget received-Expenditure in CFY, CFYm1, CFYm2, CFYm3

<table>
<thead>
<tr>
<th>Item</th>
<th>Budget in CFY</th>
<th>Actual expense in CFY (till …)</th>
<th>Budget in CFYm1</th>
<th>Actual Expense in CFYm1</th>
<th>Budget in CFYm2</th>
<th>Actual Expense in CFYm2</th>
<th>Budget in CFYm3</th>
<th>Actual Expense in CFYm3</th>
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<tbody>
<tr>
<td>Infrastructure Built-Up</td>
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<tr>
<td>Laboratory Consumables</td>
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<td>Maintenance and spares</td>
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<td>Total</td>
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</tr>
</tbody>
</table>

### 9.3.1 Adequacy of budget allocation (07) (program specific)

*In this section, the institution needs to justify that the budget allocated for program over the assessment years was adequate*

### 9.3.2 Utilization of allocated funds (08)

*In this section, the institution needs to state how the budget was utilized during the last three assessment years by specific program*

### 9.4 Library and Internet (25)

*It is assumed that zero deficiency report was received by the institution, Effective availability and utilization to be demonstrated*

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

Relevance of available learning resources including e-resources Accessibility to students

#### 9.4.2 Internet (10)

- Name of the Internet provider
- Available bandwidth
- Wi Fi availability
• Internet access in labs, classrooms, library and offices of all Departments:

• Security arrangements

9.5 Institutional Contribution to the Community Development (5)
List the activities for three assessment year being carried out by program under CDTP scheme/NSS scheme of the institute.
Declaration

The Head of the institution needs to make a declaration as per the format given below:

I undertake that, the institution is well aware about the provisions in the NBA’s accreditation manual concerned for this application, rules, regulations, notifications and NBA expert visit guidelines in force as on date and the institute shall fully abide by them.

It is submitted that information provided in this Self Assessment Report is factually correct. I understand and agree that an appropriate disciplinary action against the Institute will be initiated by the NBA in case any false statement/information is observed during pre-visit, visit, post visit and subsequent to grant of accreditation.

Date: Signature

Place: Name:

Designation of the Head of the Institution with seal
Basic Steps for Online Accreditation Process

Step 1:

- **Online Registration Process (for institutions not registered with the NBA)** An institute may apply for registration online with the institute’s basic information and receive temporary login credentials.

- The institute shall login with temporary login credentials to complete the institute’s profile and then submit to the NBA for review. The registration details shall be reviewed by the NBA officials, and the feedback review (Approval, Refer Back or Rejection) shall be communicated to the institute.

- The institute shall make the online payment of the registration fee. Once the institute has paid the registration fee, the institute will be registered with eNBA by receiving a permanent User ID and Password for further correspondence. Upon the request of the institute, a registered institute can get more than one ID, but not exceeding 5 IDs. The registered institute will be able to view its online repository.

Step 2:

**Apply for Accreditation**

- The institute registered with the NBA can apply for accreditation by logging on to its account and filling in the online application form.

- The NBA official shall review (Approval, Refer Back or Reject) the application, and once the accreditation application has been approved, then the institute will be asked to submit the prescribed fee as well as three sets (each set should consist of three consecutive days) of dates for the onsite visit.

- While giving 17 dates for the visit of the evaluation team to eNBA, institution shall undertake that the classes and academic activities would be on during the visit.

- After the approval of the online payment for accreditation by the NBA, the institute shall receive the dates for the onsite visit.

- The institute can download the SAR, and submit the filled SAR along with the required Annexure and Appendices.

- The SAR submitted by the institute will, then, be forwarded to the Evaluation Team for an onsite visit.

- The NBA will schedule the Expert visit, and communicate the dates for the same to the institute 5 days prior to the commencement of the onsite visit.

- The application for accreditation received in an academic year (1st April to 31st March) will be considered in the next academic year.

**Dos and Don’ts with respect to submission of SAR**

**Do’s**

- The SAR must be concise, pointed, and adequate in length and breadth for the purpose of accreditation.

- Provide relevant information as per the format specified for the individual programme is printed on one side of paper with double spacing, using font 12 Times New Roman, with at least one inch (2.54 cm) margin on all sides, Contain carefully compiled and authentic data.
• Proper presentation of data in appendices with charts, graphics, and visuals, wherever applicable.

• Provide relevant data for the past three years, unless specified otherwise in the respective programme manual.

• The documents should be submitted as hard copy in a soft bound form and mailed to the NBA, New Delhi.

• The soft copy should be uploaded on the NBA website.

**Don’ts**

Don’t send the following objects with the SAR:

• Original documents

• Publications such as books, journals, newsletters, thesis, etc.